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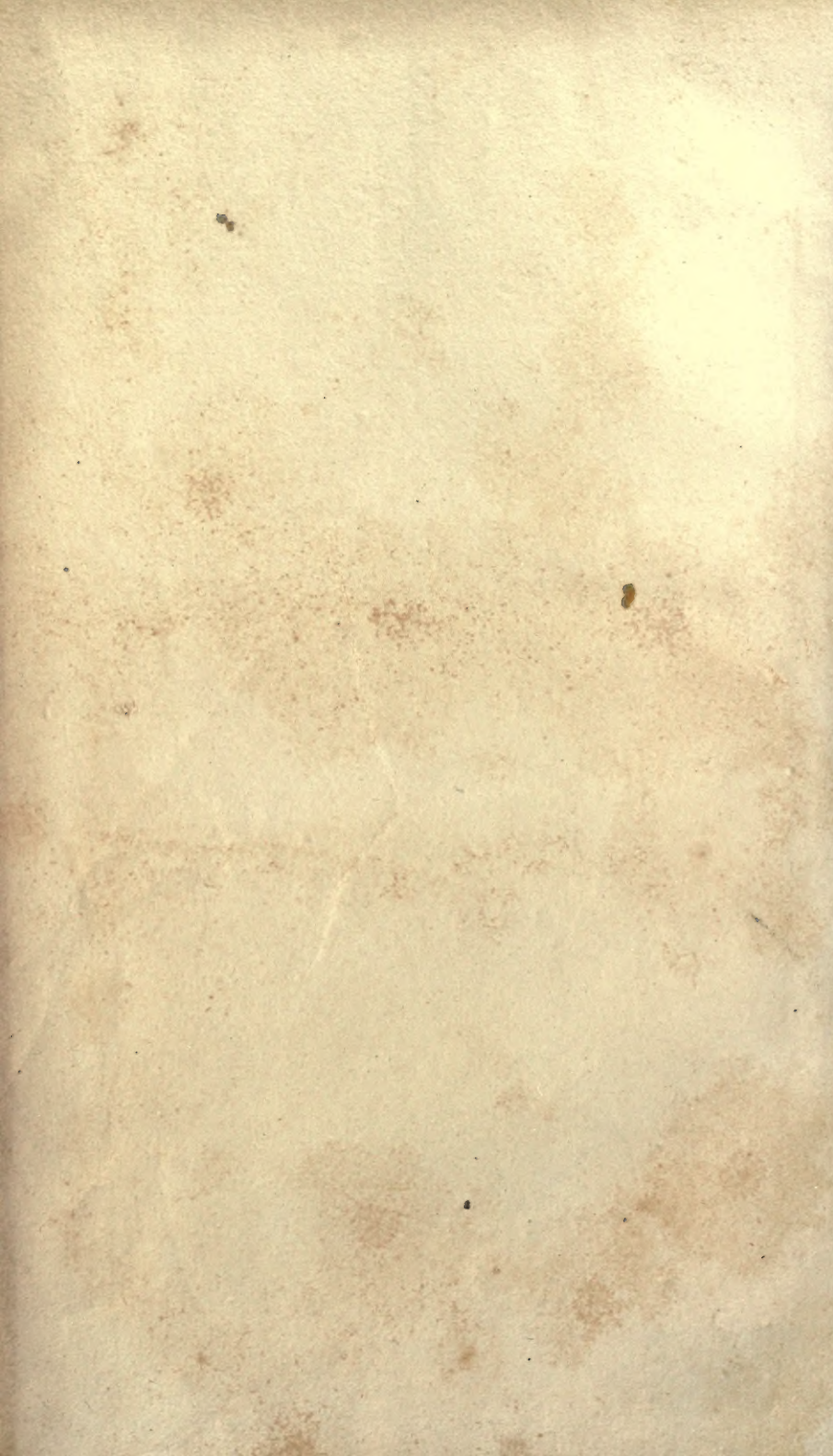
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A
PRACTICE OF PHYSIC,

COMPRISING

MOST OF THE DISEASES NOT TREATED OF

IN

“DISEASES OF FEMALES,”

AND

“DISEASES OF CHILDREN.”

↓
BY WILLIAM P. DEWEES, M. D.

ADJUNCT PROFESSOR OF MIDWIFERY IN THE UNIVERSITY OF PENNSYLVANIA;
MEMBER OF THE AMERICAN PHILOSOPHICAL SOCIETY; MEMBER OF THE
PHILADELPHIA MEDICAL SOCIETY; MEMBER OF THE ROYAL
MEDICAL SOCIETY OF DENMARK, &c. &c.

“We live in an age in which the fear of *debility* causes a prodigal use of *stimulants*; and this too often, at the expense of the health, and the life of the patient.”—*Broussais, Phleg. Chron. Vol. II. p. 82.*

“Had I *dared* to bleed freely, and especially by means of leeches, the patient might have been saved; but I was afraid of *debility*. But, who is to blame!”—*Ib. p. 178.*

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PHILADELPHIA:
CAREY, LEA & BLANCHARD.

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TO
SAMUEL JACKSON, M. D.
&c. &c.

THIS WORK IS INSCRIBED,
AS A MARK OF LONG-CHERISHED ESTEEM,
BY HIS SINCERE FRIEND,

WILLIAM P. DEWEEES.

PHILADELPHIA, }
Dec. 19, 1829. }

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ADVERTISEMENT.

WOULD it be either sufficient, or satisfactory, were the question asked, "why has this work been given to the public?" to merely answer, because we were of opinion, that it was wanted? Will the necessity for such a work, insure its faithful, or best execution? Certainly it will not. It may therefore be proper to add, that we have brought to our aid in this compilation, (for what practical work can pretend to originality,) the experience of more than forty years; and if this has been important upon the other occasions on which we have troubled the public, it must be no less useful now, as it has been no less extensive. We have therefore attempted by means of our own observations, together with those of others, as collected from pretty constant and extensive reading, to make this work useful and acceptable to the student, and the inexperienced practitioner. Should this wish ever be realized, our object will be abundantly answered; and if it be not, we must derive comfort from the conviction, that we shall not have left the practical part of medicine, in a worse condition than we found it.

We have dwelt upon certain points, which we have thought important to successful practice, with more than necessary detail perhaps, to the experienced physician; but we are persuaded he will forgive this minuteness, when he reverts to that period of destitution of practical detail in his own life, (which every physician must have felt once,) and at which, he would so gladly have availed himself of the experience of another, could he have commanded it. We now allude to the chapters, which treat of the general management of diseases, and on the duties, importance,

and qualifications of the tenders upon the sick, whether they be "nurses" by profession, by accident, by necessity, or by courtesy.

We have attempted to elicit a more extensive and strict attention to the diseases of the chest, than has been generally bestowed upon them, by earnestly recommending the practice of its exploration by the stethoscope and percussion, agreeably to the rules laid down by Laennec in his inimitable, as well as invaluable work upon this subject. We would moreover recommend a faithful study of this truly authentic author, if the practitioner wish to arrive at accuracy of diagnosis in the diseases of the lungs, the heart, &c. We would also take the liberty at the same moment, to direct the attention of the young practitioner, to the study of the works of Forbes, Williams, Andral, Bayle, Louis, Broussais, &c. who have so rapidly and so successfully advanced our knowledge of diagnosis, as well as the pathology of the diseases of the several viscera of the thorax, and other portions of the body.

In treating the various diseases which we have at present subjected to our consideration, we have been particular, whenever practicable, to dwell upon their pathology as long and as minutely as was consistent with our present design; believing, most firmly ourselves, however incredulous or indifferent others may be upon this point, that it is the only true foundation to rest practical medicine upon.

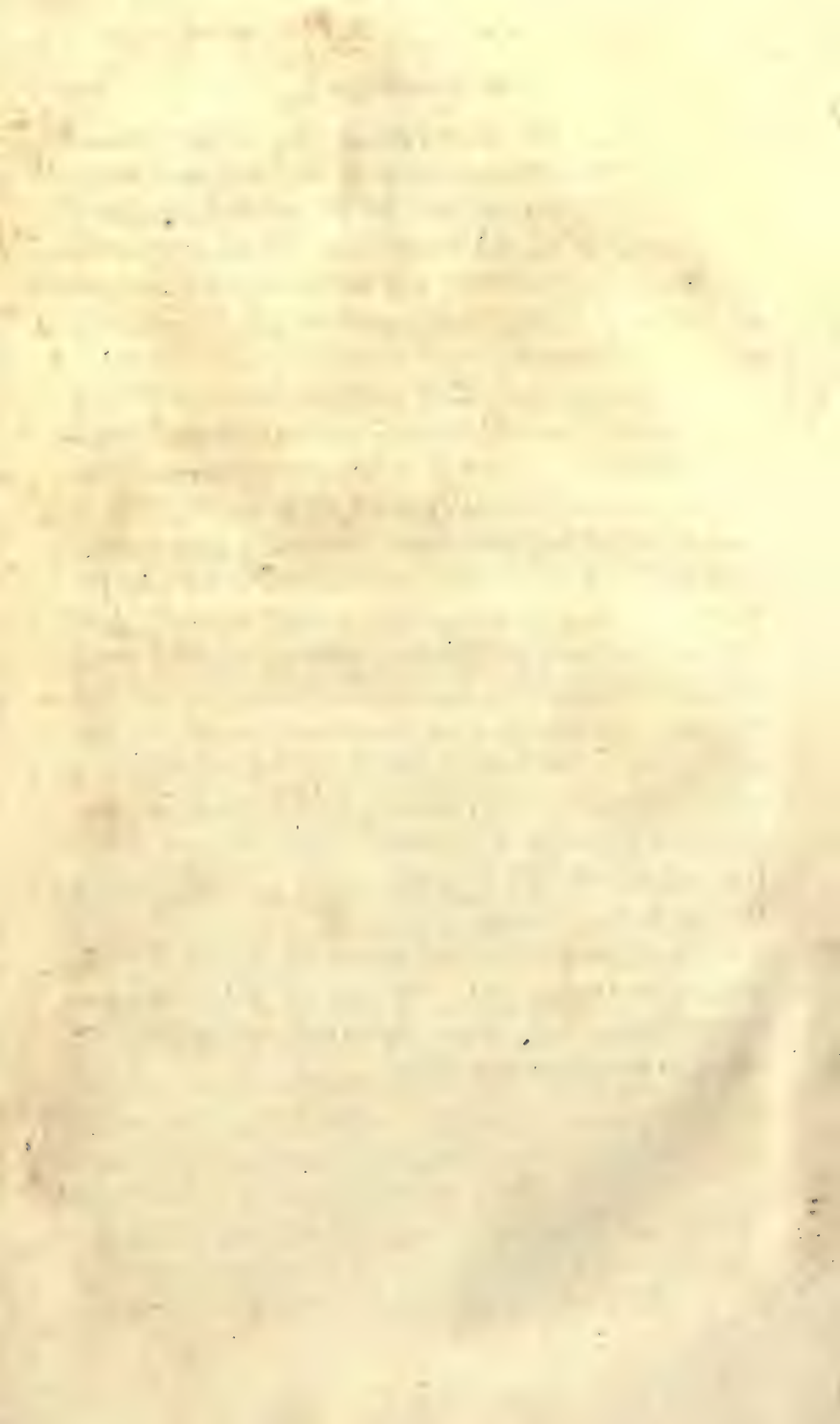
The diseases, or affections of the eyes, we felt too important to trust their pathology and mode of treatment, to our own experience; we are therefore indebted to our friend, Dr. Hays, for the chapter upon this subject—his long and attentive study of the subject, together with his experience in this branch of practical medicine, has amply fitted him for the task.

It will be seen, that the present work does not comprise the history and treatment of every disease that "flesh is heir to;" our reasons for omission are, first, that we have already treated

of many, in the "Diseases of Females," and in the "Diseases of Children." Second, that many of the minor diseases described by authors, we have never seen; for all are not the diseases of our country. Third, that in some few cases, we have neither been sufficiently well satisfied with the investigations of others, nor with our own proper experience to the present moment, to give them a place here.

To conclude; we have avoided throughout all unnecessary theoretical discussion; nor have we in any instance, attempted to make facts square with preconceived notions—or in other words, we have not attempted to build a system. (On the contrary, we have carefully studied the constitutional symptoms, and attempted to trace their origin to the pathological condition of the parts primarily involved, so far as they have yet been discovered.) Moreover, we have not in any instance yielded our assent to authority, however high, when it has been contradicted by our own experience; nor have we at any time obtruded our opinions upon points, when we had reason to believe, that the observations of others had superior claims; intending by this, to make our own experience as available as we honestly could, but never offering it as a substitute for that of another, unless we thought we had the right to the preference.

In this edition, we have added several new chapters, and carefully reviewed the old text. We have also added many new observations and facts, that our reading and experience have furnished us, since the former edition.



GENERAL OBSERVATIONS.

1. THE great light which the French, and we may now add the British, pathologists have shed upon the nature of fever, has enabled us in a very remarkable manner, to curtail its course, and to lessen its danger. The present work is not one, in which it would be either necessary or proper to discuss, the nature of this class of diseases—we shall therefore, not attempt it. It will be every way sufficient for our purpose to state, that the variety of fevers formerly made by some nosologists, is now very much diminished; and the mode of treatment, founded upon examinations after death, has been very much simplified.

2. Nothing has retarded success in the treatment of fevers so much, as the almost endless variety some nosologists have made; and each of which, agreeably to such distinctions, requiring a different mode of treatment. Thus Sauvages gives no less than one hundred and fifty varieties of fever; and almost all the nosologists since his time, though they have not gone to the same length, have nevertheless recognised so many, as to become every way dangerous in practice.

3. In many instances of fever, a single symptom has been sufficient to establish a variety, and a consequent difference in treatment—thus, we hear of a *mucous fever*, because the tongue has happened to be very white; of a *bilious fever*, because it has chanced to be yellow; or a putrid, or typhus fever, because this organ had become black, dry, or brown, &c. Now, in all these instances the state of the stomach was most probably, may have been the same; differing only in the degree, or the activity of the inflammation, which was the original cause of the constitutional symptoms; and which has these several states of the tongue very constantly, if not invariably, as attendants. If this be true, and we think it cannot well be disputed, is it not worse than idle to make distinctions, where there are no important or essential differences? or to institute a variety in treatment, where one plan, if it be the right one, and properly pursued, is every way sufficient for the end proposed!

4. It appears to be at this time settled, at least so far as unanimity can prevail upon a subject not susceptible of absolute or rigid demonstration, that, in all the supposed varieties of fever as recognised by some writers, (but which by very many of the best informed practitioners of the present day, are looked upon

almost as gratuitous,) the lining membrane of the stomach is pretty constantly found after death to be in a state of inflammation, (more or less;) and that all the constitutional symptoms, or the phenomena of fever, depend upon the altered condition of this organ; and consequently, that all the remedial means are such, and such only, as are calculated to diminish or remove it. And further, that every thing which has not this tendency, is not only useless, but is injurious.

5. We are aware, that every favourite theory, may be acted upon too exclusively in a practical sense; and we are even willing to admit, that the celebrated author of the doctrine just glanced at, pushes his practical precepts beyond, what we at this moment believe, is warranted by general experience. Thus, he confines his treatment so exclusively to the reduction of the inflammation of the stomach by leeches, and absolute starvation, that he loses sight in his plan of cure, of the necessity of removing the extraneous substances which almost always occupy this organ or the bowels; and which cannot fail by their presence, in our opinion, to become irritants, and every way able to perpetuate, if not to augment, the existing evil.

6. But on the other hand we are disposed to exercise equal candour, and to acknowledge, that much mischief is constantly done by the employment of means, altogether disproportionate to the mere removal of foreign substances from the alimentary canal, or from the stomach itself. And we further admit, (but at the same time let us be understood that we reprehend the mistake, while we deplore its consequences,) that the prevalent idea upon the subject of clearing the first passages in fever is, that it requires remedies, active in proportion, to the violence of the constitutional symptoms; the very reverse of which, is the fact, if the opinions we have adopted of the cause and for the cure of fever be true. Thus in yellow, or other high grades of fever, where the stomach is confessedly in a state of active phlogosis, the most drastic remedies are employed, as tartar emetic, calomel and jalap, scammony, gamboge, &c. for their removal; but which can only safely be treated, by the mildest applications to the stomach, either of medicine or diet. For in the milder grades of fever, the stomach will bear a more stimulating treatment, because the degree of inflammation is less.

7. For it must be evident that if the cause of fever consist in inflammation of the mucous coat of the stomach, it is every way certain, that emetics, or very active purgatives, will not have a tendency to remove this condition, however successful or sure they may be, in carrying off, from both stomach and bowels, the impurities that may have occupied them. In such cases, no greater error can well be committed, than to em-

ploy them. We are convinced that it is within the recollection of almost every observing physician, the surprise he felt when the more active forms of fever did not yield to the very powerful cathartics he employed to subdue them; and that he constantly attributed this want of success to the indomitable nature of the disease, rather than to the ineligible nature of the means he had had recourse to. He never dreamed that the stomach was in a state of high excitement; and that the stimulating remedies that he made use of, were better calculated to augment than to sooth the condition of the organ, on which they primarily acted.

8. It is to the French pathologists chiefly, but especially to Broussais, and his friends, that we are indebted for the late important discoveries in morbid or pathological anatomy; and for the great improvement in the mode of treating almost every febrile affection founded upon these researches. And though we admit without hesitation, that they have in some instances run into an ultra mode of treatment, yet we are in truth obliged to acknowledge, the value of their discoveries.

9. The premises and deductions of Broussais we are aware, are not universally admitted; but in this he shares but the fate of all who have made valuable contributions to medical science. Some pass over his suggestions even without notice; while others furiously dispute the condition of the organs on which they are based.* The one, is a reprehensible indifference; the other, too often is an uncandid examination.

10. Upon this point Dr. Johnson makes the following judicious and emphatic remarks. "If it be true, and we believe it is as good as proved, that all the symptoms known to accompany European fevers at last, also accompany the disease we are treating of, (gastro-enteritis,) in its acute form—if it be true that in nine-tenths of these fevers there are signs of gastro-enteritic inflammation during life, and that unequivocal traces of its having existed are found after death—if it be true, that this connexion of fever with the phlogosed state of the digestive organs was not efficiently noticed before the time of Broussais, then must it be also true, that this pathologist has conferred an incalculable benefit on the healing art, by calling the attention of those that exercise it, to this important, and hitherto neglected coincidence."†

11. The discovery of the inflamed condition of the stomach in fever, leads to many highly important therapeutical observances in

* Indeed we are certain, that a number have reprobated the pathology and practice of this author, without having ever read his works, or at most, have become acquainted with them, only through the medium of a review.

† Med. Chir. Review, April, 1828.

the choice, and in the administration of remedies, both as regards their qualities, and quantities; and which will very emphatically account for the many failures in their cure, before this valuable pathological fact was thoroughly established. It also points out the value of local depletion, either by leeches or by cups; and satisfactorily accounts for the frequent success, that follows the loss of a comparatively small quantity of blood, when abstracted by these means, from the region of the stomach.

12. We do not, however, yield entire faith to the French pathology upon the subject of fever; namely, that its seat is always in the stomach. For so far we have not had sufficient proof, that an inflamed condition of the mucous membrane of this organ is the true cause of adynamic, or typhus fever. So far as dissections can be relied on, this organ has very often been found in a normal state in patients who have died of this fever. The brain, the liver, the spleen, have all been observed to have borne marks of inflammation in the adynamic fevers; and in some other instances, dissection did not appear to reveal any thing that was conclusive upon this point. In all fevers that may have marsh miasma for their remote cause, the stomach we believe will almost always be found to be the seat of the affection.*

13. It moreover directs the choice of both diet and drinks in cases of fever—for it at once admonishes, the cautious use of all; and imperiously forbids the employment of any, that may belong to the class of stimulants. The cautions suggested in the use of food and drinks, are perhaps more extensively valuable, than those for the administration of remedies; for the use of the first appears to be more frequently delegated to the nurse or attendants upon the sick, than to form a part of the regular, and necessary prescription of the physician; while the latter forms

* Dr. Hannay says, "the mucous tissue or villous coat of the alimentary canal presented," (after death of fever,) "morbid appearances in *every* case I have inspected." (Glasgow Medical Journal for August, 1829.) And Dr. Tweedie, (Clinical Illustrations, p. 6.) says "that in every genuine fever, there is not one but several organs, (tissues?) affected; the affection, in the first instance, at least, is functional, however soon this functional disturbance may pass into vascular excitement, and afterwards into inflammation." And he further states, that "of five hundred and twenty-one cases, one hundred and fourteen had well-marked symptoms of severe cerebral affections." "In a large proportion of the cases, the condition of the brain constituted only part of the danger; other organs being at the same time inflamed; for example, in thirty-six the head and chest, in thirty the head and belly, and in fourteen the head, chest and abdomen, were simultaneously affected. It thus appears, that in one hundred and eighty-four the brain was seriously involved in the febrile action;" and "that in thirty-seven out of fifty-four, (the whole number examined,) the brain showed evident marks of the existence of nervous inflammation." p. 28.

the more direct province of the medical attendant, and is usually conformed to by those who have charge of the sick.*

14. By what we have just declared, it is intended to convey, a direct, and severe censure, to every practitioner who neglects to prescribe, with rigorous care, every article of food or drink his patient may require. And at the same time, we recommend to him to watch with a jealous eye, that it has neither been altered in quality, nor exceeded in quantity. We regret that this all-important vigilance is not sufficiently often exercised by the medical attendant; and that so much latitude is given to those, who, from the very nature of things, cannot either comprehend the character of the disease, or be acquainted with the best mode of treating it.

15. From what has been said, it would appear, that, in the cure of fevers, much will depend upon the choice, and the due administration of drinks and food; and, moreover, we hesitate not to say, that all well-regulated experience is in its favour of an attention to these points. Thousands have been called to an untimely grave by the over-officiousness of the nurse, or the overweening anxiety of friends; for both too often and too certainly conspire against the best interests of the patient, by acting independently of the suggestions of the physician, or by running counter to his positive directions.

16. The office of "*Nurse*"† is one of awful responsibility if its duties be properly considered; for on the faithful discharge of them, will the life of a fellow being in very many instances, almost exclusively depend. How much intelligence, good sense, and fidelity are therefore required, that the patient may profit by her attentions; or that he may not be injured by her self-willedness or neglect! Where there is a medical attendant, the duties of the nurse are reduced to two simple, but highly important rules; the observance of which should be most rigidly insisted upon. First, to do every thing that the physician orders to be done, and this in the strict letter of his commands. Second, to do nothing herself, nor permit any one else to do, that which he has not ordered; for it is fairly to be presumed,

* A physician cannot commit a greater mistake, than to leave the choice of drinks to the attendants upon the sick; this should be one of his unalienable rights, and one of his most positive duties; nor should he ever dispose of them. The directions for the drink of the patient, is oftentimes of more value than the prescription for medicine; and that practitioner is highly culpable, who neglects to specify both the kind of drink, and the nature of the aliment, before he leaves the sick room. And we are sorry to be obliged to acknowledge it as a fact, that we have known many instances where neither diet nor drinks were specified by the physician, though the patients were labouring under diseases of an acute form.

† Of this we shall speak more at large presently.

that the physician will direct, to the best of his knowledge, whatever he may think is essential to the welfare of his patient; therefore, for a nurse to put her judgment in opposition to that of the physician, is both arrogant and dangerous.

17. Unfortunately for the welfare of the sick it too often happens that the nurse when about to oppose the judgment, or disobey the orders of the physician, enlists on her side the immediate friends of the patient, by unnecessarily rousing their fears for his safety, or perhaps still more reprehensibly, by diminishing their confidence in the skill and experience of his physician. When this happens, the suffering patient is left to the management of a disingenuous and ignorant nurse; while the physician is charged with the entire responsibility of his recovery. Could all the consequences of the backslidings of nurses be made to meet the public eye, they would exhibit one of the most appalling pictures, that could be imagined, where absolute turpitude was not concerned in its production.

18. But in making this charge against this very important class of people, we mean not too generally to impugn their intentions—we are convinced they act from an honest, though a dreadfully mistaken notion, even in their greatest deviations. For it unfortunately happens that most nurses have their own notions of the nature and cure of every disease they may be called upon to watch; and but too often act upon their own theories, to the subversion of the plans of the physician; and not unfrequently, to the destruction of the patient.

19. Now, can it be for a moment supposed, that an ignorant, uneducated woman, (be her experience what it may,) shall be as well qualified to judge of the condition of a patient, as the man who has devoted the better portion of his life to the investigation of diseases? This, we are persuaded, will be answered by every thinking being, in the negative; yet, is there a physician living, who has not seen many instances, where the opinion of a nurse was preferred to his! As a mere matter of calculation, and to which every school-boy is altogether competent, it will be found, that in no instance can the judgment of the nurse be equal to that of a well-instructed practitioner, of even moderate practice. For a nurse cannot for the most part, attend but to a single patient at a time; and the whole that may fall under her charge, amount to a very few; consequently her observations must from the very nature of things be very limited; while the physician, in the same period, may have seen hundreds; and of the condition of which, from education, habits of thinking, and talent for observation, he is infinitely better qualified to decide upon the nature of the disease, and its mode of treatment.

20. Though the evils of which the physician has so much

cause to complain arise almost always from the direct agency of the nurse, yet they are less to blame in other instances than the immediate relations and friends of the patient. For did not the latter consent to become faithless to their duty; a duty rendered sacred by every tie, and by every law, the nurse could not, perhaps would dare not, act contrary to the most absolute, and well-defined directions, of the physician. It is quite time that this grievance should be redressed—it is the bounden duty of every individual in society to aid in this all-important change; nor is the remedy difficult to find—for it consists simply, in each individual determining to become faithful to his own interests, by disregarding the crude opinions of an ill-instructed nurse.

21. The injuries which the sick receive from improper nursing, are not always chargeable, as we have just hinted, to the nurse, properly so called—the near friends of the patient, from whom we have a right to expect better things, are equally, and sometimes solely culpable; for they, like the nurse, have their own notions to support; and unfortunately they do support them; and this, too often, at the sacrifice of the patient.

22. There are two consequences always dreaded by the ill-instructed, in almost every case of acute disease—namely, *debility*, and *typhus*. These phantoms, haunt the imagination with such frightful constancy, as to dethrone reason and to annihilate judgment. They are the dreaded, and constantly-rung tocsins in the ears of the physician; and unfortunately, if he be not a man of marked moral courage, and have not proper confidence in himself, he becomes so appalled and overpowered by this din, as to yield up his judgment; and this, to the destruction perhaps of the life entrusted to his care.

23. The friends, with a view to destroy these imaginary evils, (debility and typhus,) insist upon the use of improper remedies, but more especially upon improper diet, and drinks; which, if yielded to, is sure to injure, if not to destroy the patient. Inflammation, and its consequences, must, in the opinion of these alarmists, be suffered to run on, or to increase, because, the remedies most suitable to relieve them, are supposed only calculated to increase the dreaded *debility*, or to bring on horrid *typhus*. Hence, the destructive administration of bark, volatile alkali, wine, &c. or the almost equally destructive use of broths, chicken water, or animal food, in one form or other, during the continuance of fever. And we may here declare, once for all, that it is our most solemn and deliberate opinion, that the attempt to guard against this supposed debility, and this dreaded typhus, has caused more deaths, than the unrestrained Plague, or the fatal yellow fever.

24. We have dwelt upon this subject perhaps, beyond the patience of the reader; but certainly not longer than the subject demands, or its importance merits; and especially by those, for whose more immediate use, this work was undertaken. The directions for the management of the various diseases, must be regarded as the opinions of the physician, by those not connected with the profession; and consequently, general rules, must not be deviated from without a great or a well-weighed cause, if success is to follow the plans of treatment laid down in these pages. For due consideration has been bestowed on each portion of the work; and every direction given for the management of the various diseases treated of, is the result of the experience of the most approved authorities, aided by that of the author.

25. We cannot, however, dismiss this subject yet; we feel it important, again to recur to the vulgar errors on the hackneyed points of debility, and typhus.

26. Weakness, or debility, is the necessary consequence of disease, whether it be suffered to run its course without interference, or has been treated agreeably to the rules of art. The patient and the disease, therefore, must be looked upon as a unit;* and consequently, whatever abates the one, must necessarily diminish the other; and in most instances of acute, and continued disease, there is no removing the one, but at the expense of the other. This fact should constantly be borne in mind; because, as a great practical truth, it may tend to diminish the apprehensions just named, as well as give the best possible chance for the patient's recovery.

27. It should also be recollected, that *debility* is not *disease*; it is only one of its insuperable attendants; and is never, or but very rarely, of itself, the cause of death; for we may from long experience very safely say, where one dies from pure debility, an hundred perish from over-stimulation, or from the remedies purporting to counteract weakness.

28. The proper plan then to remove debility, must be to cure the disease; but the contrary course is almost constantly pursued; the consequences, we shall not repeat. Let us for a moment look at the means usually employed to *support strength*, or to *prevent typhus*. They will be found to consist of all the more powerful stimulants in our possession; and whether they range under the head of medicines, or be regarded as articles of diet, they are for the most part, equally improper. Under the former, the bark, volatile alkali, opium, æther, phosphorus, and all the bitters, may be classed; and under the latter, brandy, wine, porter, ale, alcohol, animal food, broths, and jellies, may be ranked

* Dr. Rush.

29. It is a fact generally admitted, that, the remedy which is not calculated to diminish or overcome a disease, is almost sure to increase it—now, fever for the most part has for its cause, a local inflammation; and that inflammation is seated in one of the most important organs of the body; namely, the stomach; if this be admitted, and admitted it is, by many of the most enlightened of the profession, will not the common sense of mankind revolt at the idea, that this formidable condition of the system, is to be overcome by means like those just enumerated?

30. Let it not, however, be imagined, that our treatment of acute diseases, excludes all nourishment, or every stimulant from its plan. On the contrary, it will be seen, that both one and the other are employed; and that we only insist upon proper selection, quantities, and periods of exhibition. Our nourishments will be derived almost exclusively from vegetable substances; and our stimulants, will be mainly confined to external application. We must attempt to remove another vulgar error; one which has unfortunately an application as extensive, as it is mistaken, and mischievous; namely, that all stimulants, (whether durable or diffusible,) are tonic and bracing, and consequently calculated to prevent, or remove the monster *debility*, and thus secure the patient against the other dreaded consequence, *typhus*.

31. Hence, alcohol, in the form of brandy, wine, &c., is by too many, emphatically called, *strengthening*—and hence, its almost universal employment, in the decline, and in some instances, at the very acmé of the disease, by those, whose imaginations teem with the fear of debility, and of typhus; and hence, as we have too often witnessed, the too certain production of the very conditions, so much held in dread.

32. This last assertion is not a creature of the imagination; it is too truly founded in fact; and we pledge our best hopes upon its truth. Nay further; we have many times seen a simple intermittent with well-marked intervals, converted into a highly dangerous remittent; and have more than once witnessed the latter, goaded into, what is usually termed typhus, by the too early or too powerful application, of stimuli. And we now insist once for all, that debility never was, nor never can be removed by diffusible stimuli, alone. As well might the unmerciful rider expect the renovation of the flagging strength of his sinking horse by the application of his spurs, as for us to attempt the restoration of strength to the human body, by the mere exhibition of alcohol, in any shape or form, whatever. Let it be remembered, that under the best circumstances it is rarely useful; and to be so, requires, that its exhibition should be most nicely timed, as well as regulated by the soundest judgment. Let it also be borne in mind, that where it is once fortunately

employed, it is an hundred times improperly applied. Indeed, the same may be said of some other substances, though they are usually termed *very innocent*; namely, the solution of animal jellies, in the form of broths, as beef tea, chicken water, &c.

33. We feel it highly proper to be more explicit upon the subject of animal jellies; and in so many words declare, we know of no period in the continuance of any acute disease or fever, where they are admissible; or rather, where they will not do harm. We are truly of opinion, that "*chicken water*," that *simple, innocent substance*, as it is usually called, has done more mischief in acute diseases, than even the ill-judged use of the lancet, or mercury too freely urged. For the "*chicken water*" is every day, and very often in the same day, producing its mischief; while that from bleeding and mercury under the circumstances stated, is of comparatively rare occurrence—yet so common and inveterate are the prejudices in its favour, that we fear we shall too rarely be believed, and too seldom aided in its proscription.

34. We are seriously of opinion, that a majority of the relapses in acute diseases, is owing to the injudicious employment of the "*innocent chicken water*." We well remember an instance, where only three table-spoonfuls of this animal solution, created so much fever, and so severe a renewal of the pain of pleurisy, that seven bleedings were required to subdue them; though at the moment of its exhibition, the friends of the patient, and her physician, thought her in a state of convalescence.

35. It is in the unadvised and injudicious use of animal substances, either entire, or in solution, that nurses most frequently effect the mischief complained of above. They cannot comprehend, how a small piece of meat, a little broth, or a few spoonfuls of chicken water, shall do harm to a patient who is labouring under fever, and who is confessedly, very weak; and though they quickly after its exhibition witness an aggravation of every symptom, they never charge the mischief to the improper food; and therefore they do not profit, even by experience.

36. In the same way, and with similar results, do they venture upon "*seasoning the victuals with a little dash of wine or brandy*," contrary to the most positive prohibitions of the physician. Is it then surprising, that fever should have so many victims, when the force of the disease is aided by the covert conspiracies of the attendants upon the sick! It were devoutly to be wished, that the nurse in the exercise of her duties, would constantly appeal to her conscience; for did she, she would most probably pause, and possibly cease to act, upon her own responsibility.

37. Hitherto, we have only adverted to the errors committed

by the attendants upon the sick, and exposed a few of the more prominent sources from which they arise. We shall now lay down a few rules for the government of the sick room, believing that a work strictly practical like the present, would be very defective without them.

38. It is universally admitted, that "good nursing is half the cure;" yet there are but few who understand, in what this really important art, consists. And were we to describe it by negatives we should almost be tempted to say, that it consists, in almost every thing, but that which is absolutely done. But as this brevity would not serve the purposes we aim at, we shall descend to some general principles, and the rules resulting from them.

39. In the first place, the physician has to acknowledge, that his attentions upon the sick would be altogether unavailing, were his directions not obeyed by the nurse, and this, in the most faithful manner; the rule to be followed by the nurse must therefore be obvious; namely, to follow them, most implicitly. But the duties of the nurse are various as well as important; and consist of proper qualifications for the office; the faithful administration of medicines; the giving of drinks and nourishment; attention to cleanliness; keeping the room quiet; procuring its proper ventilation; preserving a proper temperature of the air of the room; regulating the warmth of the patient; the examination and preservation of his excretions; her management of his sitting up; making of the bed; the proper use of the utensils for the evacuations; the mode of giving him drinks; the application and dressing of blisters; the administration of enemata; and management of the patient during convalescence.

1. *Of her Qualifications as a Nurse.*

40. In every department of life, however humble, or however dignified, it will be found, that certain qualities are essential to the best fulfilment of the duties belonging to each. To the one we are now considering, too little consequence has hitherto attached; it has been imagined, that any female was competent to this end, provided she had no absolute or physical incompatibility; than which, no greater error can well exist.

41. Both mental and physical powers are essential to a good nurse; without the first, she will lack a most important quality, namely, judgment; for without this she would not profit even by experience. She may possibly be competent to follow a particular, or a strictly marked out routine; but will rarely be able to generalize her duties, so as to make them available to the best interests of her patient. She could not be trusted with safety to

execute a general order, by which remedies are to be persevered in, or withheld, agreeably to the varying condition of the disease. She cannot make herself mistress of the import of symptoms; or become familiar with the several states of the pulse. In a word, she would want the happy faculty of combination, so often, all-important to the sick. The reverse of all this may rationally be expected from one who has cultivated, to a certain extent, a naturally good understanding, and who has made herself mistress of her duties.

42. She should be a woman of close observation, and of strict veracity; the first will enable her to detail to the medical attendant the various changes of the disease; or it will instruct her in the application, or the withholding of the different remedies, as may be pointed out by the physician, or by the books of instruction she may be obliged to follow. The second is eminently required, that no exaggerated statement, nor suppressed truth, may mislead the judgment of the medical attendant in forming his plan of treatment.

43. She should possess an ample share of both moral and animal courage, that no condition of the patient may make her flee the bed side of her patient, or permit him to rise at an improper moment, or to commit acts of violence upon himself; and that she may be able to withstand his solicitation for things that are improper, or that have been forbidden. Yet must she be all gentleness in manner; or soothing, or commanding in tone, as circumstances may require. She should possess feeling; that she may the more readily be prompted to her duties; but she must not be so far led astray by it as to betray alarm, where there is even just cause for it; but she should especially guard against it, when there is none.

44. She should possess moral honesty, that she may completely understand her situation as regards those, whose orders, from the nature of her office, she has voluntarily bound herself to obey. Her duty consists in passive obedience; and when she refuses this, she breaks a contract; and if she follow her own promptings in the management of the patient, she betrays a trust, by which, she may counteract the best devised plan of treatment; or may heedlessly destroy a fellow being, by a departure from her prescribed duty.

45. It is at once obvious she should possess sufficient physical powers, that she may not sink under the weight of her duties; and that she may be able to give every necessary aid to the patient, where his own strength is incompetent; where it should not be exerted, or where it would be exhausted, were it employed. But, with a view to maintain her strength, she should be supported by a proper diet, and such occasional rest,

as the exigences of the case may permit. The comfort of the patient is very often dependent upon the physical powers of the nurse; the weariness arising from a position too long continued; or the restlessness consequent upon sickness, can only at times be relieved by changes of posture; and for these changes, he must be dependent upon the physical powers of the nurse.

46. To effect these changes, requires, on the part of the attendant, not only the physical powers insisted upon as essential to this character, but also an entire willingness to perform these duties in the best manner, and as often as may be demanded; amiability, and goodness of temper, are therefore also required. Every body that has been prostrated upon the bed of sickness, knows full well how eminently it is in the power of the nurse, to render it more supportable, by a kind, willing, and amiable deportment. And the obligations which an affectionate carriage imposes upon the sick, is ever after acknowledged by a grateful recollection of it. So important is mild and attentive conduct in a nurse sometimes, that it contributes largely towards recovery. And so decidedly injurious is a contrary conduct, in some instances, that it is sure to render sufferings more intense, if not, to augment danger; while in others, it has too certainly destroyed.

47. Much depends upon the mode of exhibition, that medicines may be faithfully swallowed; or that they be not constantly rejected. A cheerful, persuasive manner on the part of the nurse, will often conquer a disgust that is almost consequent upon remedies being presented; and they are almost sure to be taken, even by children, if she administer them with delicacy, and chosens the proper moment for their exhibition. She should therefore possess so much prudence, as not to excite aversion, by talking of their ungrateful taste, or their forbidding effects; and she should have so much tact, as to seize upon the instant at which they will be taken. And upon the importance of the regular administration of medicine, every body is agreed.

48. Nature appears to have endowed the female in an especial manner, with a capacity to support fatigue, and to endure privations; hence, their peculiar fitness for the duties of nurses. And should one not possess these qualities, she is altogether disqualified for the important office of a "*good nurse*." The sick, require the utmost vigilance of the nurse; she should therefore, not be a heavy sleeper; nor even be unusually prone to sleep, lest he may suffer from the want of her attentions. This is particularly the case, where the patient is much exhausted, for sometimes he is unable from weakness to rouse her, when he may much require her care.*

* Some nurses not only sleep *profoundly*, but also snore *loudly*; serious, and double disadvantages. We visited a gentleman who had the misfortune to be

49. But as no one can endure the loss, of but a certain portion of sleep, the nurse should be indulged to take a nap during the day, at a time she can be best spared from the sick room, that she may be able to resume her watch at night. To more effectually insure vigilance, the nurse should abstain from every species of liquor, unless it may be a small quantity occasionally, if she be really exhausted by long watching, or over-exertion; sobriety is a *sine qua non* to the nurse.

50. Cleanliness in habits, is of immense consequence to a nurse; she should pay scrupulous attention to her clothes being frequently changed, and always clean. Her hands should be frequently washed; and she should not use *tobacco* in any shape whatever; if she snuff, her fingers, by which she is to prepare the nourishment of the patient, will be always begrimed with this disgusting article; if she chew, or smoke, her breath will be highly offensive. And, indeed, it would always be a good practice for her to carefully rinse her mouth after each meal; as the stomach of the patient is often made to revolt, from the impression of disagreeable odours, upon the nose.

51. Let it be borne in mind however, that too much duty should not be imposed upon the nurse; for if this be done, she may fail at a moment, when of all others, her services may be required. To prevent such accident, her strength of constitution should be consulted; that no more may be put upon it, than it is well able to bear. In cases of long-protracted illness, therefore, other assistance should be added, so as to afford her an opportunity for proper rest; or if much exhausted, for entire renovation. This, in many instances, is a matter of much consequence to the patient, for the one who has been long about his person becomes familiar with his habits, as well as with those of his disease.

2. *Of the Faithful Administration of Medicine.*

52. If there be any power in medicine over disease, it must be owing to its proper selection, and its well-timed exhibition. It is left for the physician to make the choice of the remedy; but it depends too often upon the nurse, whether it be efficacious or otherwise. It is in vain that remedies are procured, or by what-

attended by one of these unmusical nurses; on one occasion upon my inquiring of her how Mr.—— had slept, she answered “delightfully; he did not wake once the whole night.” The gentleman on the other hand assured me, in a faint and exhausted voice, that he had not closed his eyes during the night; nor could he, for the loud snoring of the nurse. Nor could he rouse her, by any effort his feeble powers permitted him to make; in consequence of which, he suffered much for drink, &c. during the whole night.

ever experience, or talent they may be prescribed, if they be not applied, as directed. A nurse therefore, assumes an awful responsibility, when she departs from her province, and undertakes to differ in opinion with the physician, or neglects his orders.

53. On the regular exhibition of medicine, the cure very often depends; this is so generally admitted, that it needs no illustration. In many cases, life itself is at the mercy of the nurse, as she may faithfully, or negligently perform her duty. How necessary is it then, that this important personage, should feel the responsibility attached to her situation; and be influenced by a conscientious regard, for the proper fulfilment of the duties, her undertaking has imposed upon her?

54. In insisting on the entire conformity of the nurse to the directions of the physician, we do not wish to be understood as declaring, there is no exception to the rule. On the contrary, the patient, as well as the physician, are occasionally indebted to the nurse, for a judicious suspension, or perseverance in remedies, beyond the strict letter of her orders; and especially, when such departures have proceeded, from a genuine exercise of judgment; and not from a wayward determination to disobey. Now, as there must necessarily exist every variety of constitution, as well as very many peculiarities, or idiosyncrasies, no one can be certain, that the remedy ordered, shall act precisely as desired; consequently the departures from such expectations may be great; and were the medicine not suspended, or sometimes urged, beyond the common direction, much injury might ensue. In such cases, the judicious interference of the nurse, may be highly valuable, and fortunate.

55. But these cases, rare in occurrence, are but the exceptions, and do not in the least interfere with the general rule; and to which, it is the bounden duty of the nurse, most scrupulously to adhere. She is therefore not only bound to perform most exactly, what she is ordered, but also, to do nothing, she is not ordered; for as much mischief may result from the one, as from the other.

3. *Of giving Drinks and Nourishment.*

56. Greater errors are generally committed in the use of drinks and nourishment, than in the neglect, or mal-administration of medicine. It is supposed, that thirst must be allayed whenever importunate; and that this can only be done, by pouring down fluids, without regard to either quantity or quality. This error is sometimes of serious moment, as it not only overloads the stomach, but also forces it to regurgitate the supra-

bundant draughts, to the great inconvenience or injury of the patient. An over-quantity causes oppression and restlessness; an improper quality may seriously injure from its entire incompatibility. On these accounts, the nurse should never depart from the quality of the drink, nor ever exceed the due or prescribed quantity.

57. Upon these points, the nurse should never deviate from express directions; for should she, she cannot answer that immediate mischief may not ensue. Drinks have a more decided influence upon the system than is generally admitted; they should therefore be subject to the direction of the physician, as much as medicine and food.

58. From a vulgar belief, that all the "herb teas," as they are called, are perfectly innocent, we find nurses in the constant habit of employing them, without the sanction of the physician; by which the most serious evils oftentimes arise. It should be recollected, that whatever substance possesses a power to do good, may also have a power to do injury, if it be injudiciously administered; therefore, the whole class of these teas should be proscribed, unless expressly ordered by the medical attendant, as they are all to a greater or less extent, of a heating or stimulating character.

59. Popular feeling is in favour of warm or hot drinks, and particularly with the generality of nurses; they are therefore almost constantly exhibited, especially in fever; because as they suppose, they promote perspiration. This error should be done away with; as experience has proved, that as a general rule, they are hurtful. A nurse should therefore never be permitted to prescribe drinks, any more than medicine; for we cannot but regard them as efficient, or injurious, as they may be properly or improperly ordered.

60. We may make similar objections to the manner of giving food to a patient, as well as to its quality. It is almost always given in too large quantities, or too frequently repeated, independently of its being too often of an improper quality. The physician alone should be the judge of these matters; and his orders should be obeyed, most strictly and literally. An error in quantity, it should be remembered, is almost equal to an error in quality; for every particle that remains unsubdued by the stomach, becomes offensive, because it remains unsubdued. Or if it be subdued, it may be extremely injurious, by affording too much nutriment to the system at a moment when it requires absolute reduction. So important then is the due administration of nourishment, that the nurse should never be left to her own discretion.

4. *Of Cleanliness in the Sick Room.*

61. No single agent is of more importance in a sick chamber, than pure air; therefore, to prevent its becoming foul, every source by which it may be deteriorated should be removed instantly, when practicable; and when not, it must be compensated for, in the best manner possible. On the nurse, this task will almost exclusively devolve; she must therefore be mindful not to neglect this important part of her duty, whenever there is a necessity. To accomplish this, every thing that can emit an unpleasant smell, or shall evolve an injurious gas, must be taken away with all convenient speed. The evacuations should be removed instantly from the room; the body, and the bed-clothes should be as frequently changed as circumstances will allow. Fresh air should be freely admitted into the room; no filth should be permitted to accumulate upon the floor, the tables, the bed, or the hearth.

62. All the vessels employed, either for medicine, drinks, or nourishment, should be cleaned the instant they are used; consequently, the same vessel or spoon should never be used twice without its being first cleaned, unless the substance for which it has been used is not of a nature to become offensive to any sense.

63. The patient's hands and face should be frequently cleansed; and especially when warm, by wiping them with a towel or napkin wetted with cold water or vinegar and water, unless there be chilliness present, or is easily excited by the application of any thing cold. In a word, every thing should be kept as clean and as sweet as the nature of things will permit. With the same view to comfort, the patient should have his mouth frequently cleansed; by himself, if his strength will permit; and by the nurse, when this fail. This attention is particularly grateful in the decline of such fevers as assume what is called the typhus type; that is, where the tongue becomes dry, and the teeth encrusted. For this purpose, yeast and water is very effectual; or a wash made of a tea-spoonful of the sweet spirit of nitre, and a table-spoonful of water. The latter is particularly acceptable to the mouth in the beginning of active fevers; where the tongue becomes loaded with a white dense fur, or is coated with a tenacious slime. The patient when able, finds both comfort and amusement, while performing this office for himself, by means of a tooth-brush.

5. *Of quiet in the Sick Room.*

64. There is scarcely any thing so distressing to the sick, as noise. It should therefore be the nurse's particular study to prevent inconvenience from this cause. She should not only be of quiet habits herself, but she must make every body else conform to this regulation. A talkative nurse is a great evil; indeed it is one that can only be removed sometimes, by the removal of the nurse herself; and it were always better to do so, than to have the patient exposed to evils arising from loquacity.

65. A talkative nurse is almost sure to be a superstitious one; and if so, she will deal out her forebodings so liberally as to do decided injury to the patient. In the sick room no signs should be enumerated, but good ones; therefore all gossiping recitals of similar cases having had an unfortunate termination, should be most carefully prohibited. All unnecessary conversation should be avoided, as the sick room is not the place for idle colloquies. If conversation must be carried on, let its character be of the cheerful kind; and in a tone of sufficient elevation, that the patient may, if he become interested, thoroughly comprehend it. This should always be remembered. But as a general rule, the less conversation is indulged in, the better; especially when the disease is of the acute kind.

66. In certain conditions of the nervous system, cheerful conversation is frequently highly beneficial—and in such cases, an agreeable, chatty, and well-instructed nurse, is of immense value. But even in such cases, the topics of conversation should be judiciously chosen, and their duration properly regulated.

67. A nurse however, may be annoying to the patient if she be not over-talkative; for there are your bustling nurses, who are forever putting "things to rights," without ever effecting the object; and who during the whole time make so much clatter, that the patient gets no sleep, however strong the desire; or else is as constantly disturbed, by the officious employment of shovel, tongs, or dusting brush.

68. We are aware that the use of these implements cannot altogether be dispensed with; but their employment can certainly be properly timed.

69. It were better, that the hearth remained unswept, or the fire unrenewed, than the patient should be prevented from taking his nap, or that he should be roused from a sleep, that might be highly instrumental to his recovery.

70. Indeed, a judicious well-instructed nurse, knows how to take advantage of the times, that will be least annoying to her

patient. There should therefore, be *no absolute or fixed time*, for "*clearing up the room*;" the moment that will create the least annoyance to the sick, should be the only one selected. We have seen your nurses of *absolute routine* do much injury by the performance of this office, at ill-chosen periods. The condition and comfort of the sick are always to be taken into consideration; and ringing the changes upon the unstable shovel, tongs, and andirons, should be postponed, until the instant, at which the patient would be the least annoyed by it.

71. There is another very fruitful source of noise, and annoyance in the sick room, and which is very rarely attended to; namely, the noise of a creaking shoe. A nurse during her attendance upon the sick, should not wear a shoe that will yield the slightest sound; for she can always command such as will not; or if she cannot, socks can constantly be procured, and with these her feet should be clothed.

72. We may enumerate several other sources of unnecessary and vexatious noises in the sick room, either of which is capable of preventing or disturbing sleep; namely, the rattling of knives and forks; the jingling of glasses; and the clatter of spoons, and plates. Now, as these can never be necessary, they should always be eschewed. And "though last, not least," in this ample enumeration, is the frequent opening and shutting of the door of the sick room. This common and certain annoyance, can always be avoided by the following observances.

73. 1st. Let the door be kept open, whenever it will not be desirable, or necessary to have it shut.

74. 2d. If unavoidably it must be kept shut, let its being opened be productive of as little noise as possible; 1st, by having the locks in good repair; and 2d, having them to open easily; and 3d, by having the hinges well oiled.

75. 3d. Let the door be opened, only when it is absolutely necessary for the comfort or necessities of the patient; to avoid unnecessary openings, permit no more to enter the room than is essential to the nursing of the patient; because you will have to let all go out that come in; and each, will be a fresh disturbance.

76. 4th. Never permit the door to be opened, while the patient is sleeping; to command this, we are told, that in London, they have a very simple mode of communicating the information, "that the patient is asleep," by thrusting the feathered end of a quill through the key-hole. It would be highly useful to adopt this contrivance in this country.

77. 5th. Exclude all visitors from the sick room, however nearly they may be related by blood, or connected by friendship, whenever such prohibition shall be essential to the com-

fort or safety of the patient; for it is better to give *temporary* offence, than to produce *permanent* mischief.

6. *Of the Ventilation of the Sick Chamber.*

78. One of the most important attentions a nurse can bestow upon the sick room, is, its proper ventilation. As regards this essential observance itself, it matters not, whether the season be hot or cold; for, in this instance, we merely, but distinctly mean, changing the air of the room—that is, the removal of that, which has become impure, for that which is pure. This can only be done with certainty, by establishing a current of the external air through the sick room, by the doors or windows being opened to a sufficient extent, and for a sufficient length of time.

79. As this can always be effected by proper management without risk; and as it is of the first consequence to the patient, it should never be neglected. The frequency of this renovation, or rather this exchange of air, must be regulated, 1st, by the season of the year; 2d, by the state of the weather; and 3d, the nature of the disease.

80. 1st. The season of the year will influence the necessity of ventilation; thus, in cold weather, or in winter, the air of the room does not so soon become vitiated as in warm weather, or in summer. For the substances capable of deteriorating the air, do not so readily become decomposed; and the circulation of the air in the room is much more rapid in consequence of fire; and, consequently, more frequently changed. Whereas, in summer, the contrary constantly obtains; hence, the greater necessity of giving air entrance from without, by means of the windows and doors.

81. 2d. The state of the weather, as regards its moisture or dryness, will necessarily influence ventilation. If wet, whether it be hot or cold, it will never be proper to admit the external air immediately into the sick room suddenly, or in large quantities at a time. The capacity to ventilate a room properly, under such circumstances, will necessarily be subject to many contingencies, as fortune, or poverty may prevail. The best mode of performing this, under every circumstance, cannot be laid down; much must be left to the discretion, and good sense of the attendants.

82. 3d. The disease under which the patient may be suffering, will also have its influence upon the air of his chamber; and as a general rule we may lay it down, that fever, and every other acute disease, will require more frequent ventilation, than chronic affections. Unless the latter have as an attendant, profuse, or offensive discharges; in this case, it may be necessary to

change the air more frequently than even in fevers, or other acute diseases.

83. Every body seems to be aware of the usefulness of changing, or purifying the air of a sick chamber; some arrive at this desirable end by the shortest and most effectual road; namely, by the admission of fresh air from without; while others suppose they attain this change by chemical decomposition. Hence, we have open windows and doors in the one instance; and suffocating vapours in the other.

84. We need not say more upon the first of these modes than we have already done; on the latter, it may be well to offer a few observations, as its effects are not well understood; or they certainly would not continue to be resorted to. Combustion of every kind necessarily destroys in proportion to its extent and continuance, a quantity of oxygen, or the vital principle of the atmosphere; consequently, wherever this process is performed, the air becomes less pure, by the loss of all the oxygen the combustion required, to carry it on. Now, when sweet herbs, as they are called, rosin, sugar, tar, frankincense, &c. are burnt in the sick room, the air of that room loses a certain part of its vital air; and is, from this cause alone, less pure than it was before the burning was performed. But this is not all—for the air now has in it, in exchange for the oxygen with which it parted, a quantity of that irrespirable air, called by the chemists, carbonic acid gas, or fixed air, besides a disagreeable odour, and other gases that are unfit for respiration. And nearly the same may be said of decomposing vinegar upon a hot shovel, or upon live coals. These methods of purifying the air of a sick room, should therefore be strictly prohibited.

7. Of the Temperature of the Sick Room.

85. There is no fault in nursing more common than over-heating the room of the sick. The dread, that the patient will take cold, unless his chamber be heated almost to suffocation, is no less common than the fear of typhus, and the apprehension of debility. And like both these latter terrors, it has its own penalties. For in almost all acute diseases, it is erring on the wrong side; for very many more suffer from too much heat, than do from too little. Light should be constantly excluded; at least as much as is compatible, with proper temperature, and ventilation.

86. To fever patients, nothing is so grateful, as a reduced temperature; nor can any thing be more proper. One of the great efforts of the physician in fever, is the reduction of the ac-

cumulated heat of the patient's body; and one of the best agents for this purpose, is the application of air to the surface of the skin, as well as that of the lungs, when it is of a lesser temperature than the body. The advantage of this application is quickly perceived, by its tranquillizing influence upon the restless and agitated patient; by his skin becoming cooler; his breathing less hurried, and his pulse less frequent; or, perhaps, by his quickly falling into a refreshing sleep, or breaking out in a universal perspiration.

87. But on the other hand, if the heat of the room be equal, or nearly equal to the temperature of his skin, the reverse of all this is sure to happen—an aggravation of every symptom will certainly follow. It therefore becomes the bounden duty of the nurse, to so regulate the heat of the room, as it shall be constantly below, by a number of degrees, that of the patient's skin. We look upon a thermometer to be a necessary appendage to a sick room—for by this instrument alone, can we be certain of either an increase, or decrease of temperature; our feelings are fallacious guides.

88. At a season when fires are not in requisition, an attempt is frequently made to warm the room upon any sudden reduction of atmospheric temperature, by burning of charcoal in the room. Let this never be practised; as it is oftentimes replete with instant and imminent danger.

8. Regulating the Warmth of the Patient.

89. At first sight it might be supposed, that this part of a nurse's duty would regulate itself—but it is not so. There is no one point in nursing, that has, so little system, or that is directed with so little judgment as the warmth of the patient. Nurses upon this point, have no principles to direct them; or none at least, that are conformable to the proper treatment of the patient. It never becomes a subject of thought, that the patient can be benefited or injured by a particular quantity of bed-clothes, or by any particular temperature of his body, provided he does not complain of feeling cold.

90. If the patient declare he feels too cool, more covering is heaped upon him; and sometimes, without mercy. To relieve the sensation of cold by additional clothes, is always proper; and the nurse in her attempt to restore pleasurable sensation by this means, acts in strict conformity to principle, but without knowing it; and so far so good. But here her anxiety ceases, and her judgment is no longer exercised; for after reaction has taken place, and the heat upon the surface has become exces-

sive, she never dreams, that it is as beneficial to lower the temperature, as it was proper and grateful to raise it, when it was too low!

91. She refuses to comply with the earnest prayer of the almost burnt up patient, to “remove some of his covering;” but on the contrary, insists it would be *his death were she to do so, or he would take cold*. He is therefore obliged to submit, until the heat becomes so intolerable, that he bids defiance to restraint, and removes the offending covering by main force; and he effects oftentimes by this independence, such a reduction of temperature, as will perhaps now induce the skin to throw out a free perspiration.

92. It is true, that the poor nurse was anxious for this very result; and the very object of her refusal to remove the superfluous bed-clothes, was to induce the sweating, so quickly effected by the very opposite means. She is not aware, that there is a sweating temperature; and that when this is exceeded, perspiration will cease if it have been present; or that it will not take place during its continuance. The rule therefore upon this point is plain; that the patient should no more be allowed to complain of too much heat, without an attempt at its reduction, than he should be permitted to remain chilly, when it is possible to remove it. In a word, we should try to create the pleasurable sensation of healthy temperature; and this can very often be done by the proper adjustment of the covering; and this without incurring the smallest risk. Therefore, the quantity of covering, should always be made subservient to the sensations of the patient.

9. *The Examination and Preservation of the Excretions.*

93. This duty is almost constantly neglected; not being capable herself of drawing conclusions from the varied appearances of the evacuations, the nurse very often does not even inspect them, much more preserve them for the physician.* Or if she have seen them, her account of their appearance is expressed so vaguely, that no satisfaction can be obtained, by any extent or ingenuity of interrogation. They have for the most part, a set of terms to express the colours of the stools, and which may be every way satisfactory to themselves, but which are altogether unintelligible to the physician; such as “natural;” “very healthy;” “very heavy;” “very slimy;” “very black,” &c. &c. Now, we have frequently found by inspection, that their “natural” and “very healthy,” were highly bilious; their

* We almost constantly direct the keeping of the evacuations; but for this purpose they should not be retained in the sick room.

“very heavy,” to mean no more than very offensive; their “very slimy,” to be pure bile, without a particle of the mucus of the bowels, which you were from their description, prepared to meet; and their “very black,” is almost sure to prove brown, &c.

94. The same or similar errors are constantly committed in their accounts of the appearance of the urine, when inquired for. It is “very white;” “very red;” “very black;” “very thick,” &c. The “very white,” means transparent, or of the colour of water; “very red,” means that it has deposited a red sediment; “very black,” means, when it is highly charged with bile; and “very thick,” means, that after standing it has become turbid, though perfectly clear and thin, when it was evacuated.

95. On this account, we never depend upon their descriptions of the excretions; and we are in the constant habit of ordering them to be preserved that we may judge for ourselves; but we are constrained to say, that too little regard is paid to such orders, though it is the duty of the nurse to obey them, as the inspection of them is highly important.

10. *Of the Patient's sitting up.*

96. An overweening anxiety on the part of the nurse to have the patient sit up, is often productive of serious consequences. It is imagined and declared, that “the patient can never gain strength while he lies in bed”—hence, he is forced to ill-timed exertion by the importunity of the nurse, or of his friends, at a time that may occasion him to faint, or to endanger a relapse. They seem to forget, that this change of position requires a certain quantum of strength to perform it; and that it cannot be done if that be absent. Now, in cases of long, or even of short, very enfeebling diseases, the strength is oftentimes so prostrated, as to require much care, to either husband, or improve, the remaining little. Yet the patient is often required to expend his little stock, to gratify a false theory of the nurse, or friends. In this, they are only directed by a popular and vulgar error; for it is evident, that if the patient's strength has been so prostrated at a certain period, that even the nurse would have deemed it imprudent to have attempted it, it would be madness, to insist upon its performance, if it had not improved; while on the other hand, it is equally clear, that if he be able to do this after a short interval by care, that he must have acquired some strength; consequently, it gives contradiction to the position, that “the patient cannot gather strength, while he lies in bed.”

97. Sitting up after illness, is, to all intents and purposes, exercise. Now, during an approaching, or even during a confirm-

ed convalescence, exercise to be useful, must be most carefully employed; lest its excess, and this even in a trifling degree, be productive of the most serious consequences. For exercise is a remedy; and a remedy of great power; consequently, if its *dose* be not properly, and opportunely prescribed, its effects may, like an over dose of any other active remedy be followed by irremediable evils. We wish we could persuade the advocates for this hap hazard *sitting up*, to view it in this light; for did they, much mischief would be saved.

98. The rules for sitting up, are in strict conformity with those, which govern every other remedy; namely, that its *dose*, is to be regulated, by its necessity; the strength of the patient; and its effects. It must generally be looked upon as a stimulant of great power; and consequently, must be used as such. To prove this, it is only necessary to examine the patient's pulse under its influence, and it will be constantly found, when employed at the time of great vascular excitement, to be from ten to twenty strokes in the minute more, in the sitting up, than in the supine position of the body; consequently, proving its stimulant power, and oftentimes, its unfriendly effects in fever.

99. And when resorted to in cases of great debility, the heart performs its functions with such rapidity, but with such speedy exhaustion, that fainting is often induced in a very few minutes.* But this condition of the system may be produced, by the *dose* being ill-timed, or too long continued. Now in either case, mischief, and sometimes, very lasting mischief, ensues. It therefore follows, that much care is required, in getting the patient out of bed; and that it should be considered as a great qualification in a nurse, who can prescribe this remedy advantageously, to her patient.

100. It is a very common error with nurses, to permit their patients to sit up too long at a time; indeed, in general they seem to have no other rule upon this point, than to let them remain as long as they can support the fatigue; consequently, all the good, that might have been derived from the change of position, is defeated in an instant, by a state of faintness being induced. The patient should therefore never remain sitting up one moment longer, than while his sensations continue to be agreeable; for if he be not instantly replaced in his bed when these pleasurable feelings cease, he will be sure to suffer from exhaustion, if not from fainting. It is therefore very much better that the patient sit up several times during the day when he can sup-

* Fainting is also produced, by the blood retiring from the brain upon the patient being placed in an erect position; leaving too little in this organ for the purposes of due stimulation of the nervous system.

port it, than he should sit up one minute after he finds his strength flagging.

101. There is another error committed during the sitting up of the patient, which is every way calculated to destroy any good the getting out of bed promises; namely, surrounding him with bed-clothes in such quantities as to oppress him with their weight, as well as to exhaust him, by their heat. This practice should be carefully avoided, if any good is to result from his change of position. Again, the fear of his "catching cold," which induced the nurse to stifle him with bed-clothes, also leads her to the shutting out from the room every particle of fresh air, by blocking up every avenue to its admission. The patient, in consequence, is obliged to breathe both a heated and impure atmosphere; this quickly exhausts him, and he soon begs to be restored to his bed. There is no possible necessity for this over-caution; all that is proper to guard against, is a current of cold air immediately upon the patient, and preventing chilliness.

11. *Of the Making of the Bed.*

102. This necessary arrangement, is almost always badly conducted. It is seldom performed with either comfort or advantage to the patient; as his immediate condition, is too often lost sight of. He is frequently taken out of bed, and made to sit in a chair, while the bed is beating up, and the clothes are spreading. During this period, he either becomes much exhausted, or absolutely faints.*

* The following instance of this kind, was so extensive in mischief, that we think it proper to relate it, as it may perchance serve as a warning to the indiscreet nurse, or to the officious friend. In the summer of 1825, we attended a young gentleman with a high grade of bilious fever, and from which he was slowly, but certainly recovering. He however was still extremely weak; though he was now permitted to use a more nourishing diet than he had hitherto been allowed, and with the most marked advantage. Quiet and rest were still recommended; he was allowed to be shifted to different portions of his mattress, whenever the part he was lying on, became unpleasantly warm, as the weather was very hot.

A friend called to see him; and finding him still weak, and very much reduced, declared that unless he were taken out of bed, and permitted to have the air circulate around him, he could never expect to gain strength; his nurse was of the same sentiment, and they urged their opinions so strongly, that the mother of the patient yielded, though reluctantly, as it was contrary to the express commands we had given but a few hours before, and which she was every way willing to obey.

Accordingly arrangements were immediately made for the sitting up of the patient; he was lifted out of bed, and placed in an easy chair, where he had not been more than five minutes, before he fainted. His syncope was so extreme, and so long-continued, that he was considered as absolutely dead; for on our arrival to his assistance, we were informed before we went up stairs,

103. It should therefore be a constant, and a never to be departed from, rule, that the patient is not to be taken up at the risk of fainting; more especially as this too early rising can never be necessary. For if the patient is obliged to be moved for the purpose of refreshing his bed by a change of its linen, &c. he should be lifted carefully from it, and placed upon one adjusted by its side; or in cases of still greater debility, he should only be removed to the other side of the bed, while the one he has just left is undergoing the necessary change, and to which he may be soon restored, to enjoy the alteration just effected.

104. It would be a most profitable arrangement for the sick with fever, or other acute diseases, if a mattress could be substituted for the feather bed; than which there is nothing more unfriendly to the disease, or more destructive to the comfort of the patient. The advantages of the mattress over the bed, are as evident to those who will reflect upon the subject, as the inconveniences of the latter are notorious; but so inveterate is habit, that substituting one for the other, with the generality of the people in this country, is rarely to be accomplished. Besides the obvious advantages of the mattress to the patient, we may reckon the facilities it would afford to the nurse; to her, much trouble would be saved by its general adoption; yet strange to say, she almost always gives the preference to the feather bed. And it is one of our tests, of a well-instructed and a reasoning nurse, when she decides in favour of the mattress.

105. The necessity of beating up the bed, or newly-spreading the mattress, must be regulated, by the nature of the disease, and by the strength of the patient. In fever it should be done twice a day, if the patient have sufficient strength to bear it without risk; more seldom as this may be upon the wane. But when unable to leave his bed for this purpose, he may be shifted from side to side, as directed above; (especially in warm or hot wea-

that this was the case. We gave into the belief, ourselves for a moment, and looked upon the case as altogether hopeless. Yet we thought it proper to try means, though a full half hour had elapsed from the first moment of fainting. Accordingly, hot wrappers, bricks, jugs of warm water, volatile alkali to the Schneiderian membrane and lips, as well as to the rectum by an enema, &c. were instantly resorted to; and after about twenty minutes of uninterrupted exertions had been employed, we had the pleasure to hear him make a deep inspiration and expiration. These were repeated, and soon followed by an evident pulsation of the heart. But not to dwell, he gradually gave evidences of returning animation; and eventually life was restored. He remained after this in a state of great feebleness for a long time; but eventually recovered.

In this case I attributed much efficacy to the injection; consisting of two teaspoonfuls of the pure ammonia water, and a pint of warm water; as the favourable signs took place almost immediately after. My present impression is, that this use of the aq. ammon. puræ, has not heretofore been resorted to, in cases of extreme syncope, or of asphyxia; it may deserve further trials.

ther,) as often as his inclination may prompt, or his strength will permit; provided this be not performed while he is sweating.

12. *Of the Proper Using of the Utensils for Evacuations.*

106. On the proper employment of the several utensils essential to the sick room, much of the comfort of the patient will depend, if it be not even instrumental to his recovery. One of the cardinal objects in the management of the sick, is, to avoid *all unnecessary fatigue*; and this should never be lost sight of, even in the smallest details of the art. One great source of fatigue, is the mismanagement of the patient during his evacuations. He is forced to rise from his bed for the performance of these necessities, at a time he can oftentimes ill support the expense of strength it will require; and sometimes it is completely exhausted, before they are completed.

107. To prevent inconveniences so serious, yet so constantly recurring, as much as possible, requires on the part of the nurse, an entire acquaintance with her duties, and the best mode of performing them; and more rests with her in this particular than is commonly imagined. Some of them require that every exertion should come from the patient; while others manage the various operations with great dexterity, and at a small expense of his strength. The latter class possess feeling, knowledge, and experience; for it requires all to perform these offices, to the greatest advantage. Hence, the immense value of some nurses over others.

108. As a general rule, the patient when feeble should not be made to leave his bed, when he can without much inconvenience perform his offices in the bed. For this purpose, a bed-pan, and an urinal are very necessary appendages to the sick chamber; indeed it is not properly furnished without them. We are aware, that the nurse will plead in extenuation of the patient's getting up, that he neither can nor will, use the pan in bed—indeed we have witnessed this opposition in many instances; but at the same time we scarcely ever failed to find, it was owing to the mal-adroitness of the nurse, rather than to a rebellious disposition on the part of the patient. With a little management and perseverance, this difficulty is almost always surmounted.

109. Before the pan is offered to the patient, a pillow should be placed under his back, so as to prevent its becoming hollow, and consequently unsupported. We have almost constantly found this want of support to be the ground of complaint against the pan; but it is certainly remedied in this way.

110. For the purpose of passing urine, the patient, (male or female,) should not be permitted to rise, when strength is upon

the wand, or when it is much exhausted, if the proper utensils can be procured. And this can almost always be done, if due attention be paid for this purpose.

111. Of apparently minor consequence, though of equal import, is the manner in which the patient is forced to receive his drinks; for though no single effort to receive drink, is equal to the exertion of using the pan, it is nevertheless oftentimes very distressing to the patient from the manner in which it is given; and as this is repeated very frequently in fever, and other acute diseases, the sum of exertion after a little while, will be found very considerable, and highly injurious to the patient.

112. A very large majority of nurses oblige their patients to rise in the bed to receive their drinks; this is owing to the improper form of the vessel from which they receive it; for did they not raise themselves, or suffer themselves to be raised, the clothes would receive as much of the fluid, as the patient. A tumbler, a wine-glass, a bowl, or a cup, are the common vehicles of drink; neither of which, should ever be employed in a well regulated sick room, while the patient is confined to his bed. The sick-cup, as it is called, should alone convey drink to him; for by it all fatigue is spared; and he can receive it in any position of his body, without the slightest exertion. They can be procured from almost any china store.

13. *Of Skill in Applying and Dressing of Blisters.*

113. This is a most useful, and important part of a nurse's duty; and it is one, of which she should never be ignorant, especially, as the efficacy and success of the application, as well as the comfort of the patient are all concerned in it. It is not the mere application of the plaster to the spot indicated, that ensures the best effects of this remedy—something more is required; and this something, the nurse should be acquainted with. Thus, when the circulation is languid, and the sensibility much diminished in the part, it would be almost idle to bind the plaster to it in the common way, or without preparation of the spot to which it is affixed, by first rubbing it well with some highly stimulating substance.

114. But this is not all that is required, to secure the best offices of blisters. Dr. Watt* tells us "that when a blister is to be applied, it ought to be large and spread so thick as to rise in as short a period as possible. In this respect, practitioners themselves commit very great errors. If a blister rise at all, they think every purpose is served that a blister can accomplish; but

* Treatise on Chincough, &c. p. 244.

this is by no means the case. A blister made too weak or spread too thin, soon dries, and merely raises the cuticle, and even to do this, requires a considerable length of time; whereas one thickly spread, with well made plaster, raises not only the cuticle, but also the rete mucosum, and does it too in a much shorter period." "I am fully convinced, from long experience, that there is a very great difference in blisters according to the manner in which they are made up and applied. The practice of putting dry flies on the surface of the blister, is also a bad one. If the flies be good, and the plaster well prepared, it requires no such assistance. Besides, the loose particles of the flies are apt to insinuate themselves into the skin and adhere to the sore after the blister is removed, giving the patient very unnecessary uneasiness and often producing strangury."

115. It must therefore be looked upon as a rule, that the operation of stimulating the part be always performed, under such circumstances; and that it is the province of every *nurse*, properly so called, to be acquainted with it, and to comply with it. If she be well instructed in her art, she will at once select, and apply, the proper substances. If she be not, she must be directed to the use of the spirit of turpentine; of hartshorn; or Cayenne pepper and brandy, &c. for this purpose; with either of these, the part on which it is designed to place the blister, should be well rubbed, for four or five minutes before it is bound on.

116. But on the other hand, an ignorant nurse will sometimes do mischief, by employing these substances, where the circulation is active, and where the sensibility is perhaps even exalted; merely, because she has seen them do good where they were necessary; and thus proving herself altogether unacquainted with the reason for their application—we have witnessed several mistakes of this kind, to the great annoyance of the patient.

117. An improvement of great consequence in the application of blisters, has lately been made, by substituting adhesive plaster for bandages. This mode is particularly valuable, when the blister is to be applied to any other part, than the extremities. Thus, all the inconveniencies, and the confinement which attach to bandages, is entirely avoided when the plaster is to be applied to the chest, abdomen, back, or between the shoulders. Simple as the method is when sticking plaster is used, we have found its utility entirely defeated, by the mere *routine nurse* not understanding its proper management. This has happened from the almost universal belief, that a blister will not draw without the part on which it is to be placed, is previously wetted with vinegar—this therefore is done; and the plaster is applied, and all is supposed to be right. But upon the examination of the blister, at the allotted time for its drawing, it is found any

where, but where it was designed to have been placed; for the part being wet, the adhesive plaster would not stick; and the blister became at the mercy of every motion of the patient. And time, perhaps precious time, has been lost; or a part not intended to be subjected to its operation, been made to endure the pain, but without the smallest advantage to the complaint for which it was designed to relieve.

118. It may be proper to remark, that with grown people, but especially with males, it would always be best to remove the hair by shaving the part designed to be the seat of the blister, even when the common mode of applying it is adopted; but that it becomes absolutely necessary, when the sticking plaster is used, if the part be supplied with it.

119. As we consider the use of the adhesive plaster to confine a blister to have great advantages over bandaging, we will detail the two modes of employing it. The first, and most common, though not always the best, is to have the margin of the plaster spread from half to three-quarters of an inch, with the adhesive plaster. If the blister be small, half an inch, (as with children,) will generally be sufficient; if larger, three-quarters may be necessary; but if very large, it may require an inch of margin. When thus prepared, its edges are to be snipped by scissors in a number of places, to the depth of the sticking plaster, to secure its sitting better on the part. It must then be held over a few hot coals, until the adhesive plaster becomes sufficiently softened, to insure its sticking well to the skin.

120. The other plan is, to have strips of spread sticking plaster, of such lengths as shall extend two inches at least over each margin of the blister after it is applied to the part; the breadth may be three-quarters of an inch. In this case the blistering ointment covers the whole surface of the plaster. The mode of applying the adhesive strips, is by warming them well, and then making them across the blister, either directly across each end, or in the direction of its two diagonals. If the plaster be very large, or the patient very restless, three, or even four strips, may be necessary. To secure the adhesion of the plaster, the skin upon which it is to be applied, should be perfectly dry; if it be moist with perspiration, a little common flour dusted upon it, and wiped off, will effectually serve the purpose proposed. Should the blistering part of the plaster be made of the dry flies, it is best to moisten its surface carefully with a little warm vinegar or brandy; taking care not to touch the margin with it, if it be spread with adhesive plaster, or it will prevent sticking.

121. When blisters are applied to the legs, it is best, especially if the patient be restless, to draw stockings over them, which will effectually prevent their being disturbed.

122. The period commonly allowed for the drawing of a blis-

ter is twelve hours; and, as a general rule, it is sufficient. But as there are many deviations from this rule, it will be well to notice them. These departures from the general law, are found to consist in, 1st, the anticipation of the period of twelve hours; as in children, and with skins of peculiar susceptibilities. With the first, under common circumstances, the blister is frequently found to have performed its duty in eight hours; and very often in six. It should, therefore, always be examined at these periods, and dressed, if sufficiently drawn;* if not, it must be suffered to remain, until this take place. With the second, the same rule should be observed; and we are directed to the belief that it has drawn, in the adult, by the peculiar burning sensations, he may complain of. It may be remarked, as a general rule, that children, (contrary to what we would suppose,) suffer much less than the adult, from the action of cantharides.

123. 2d. The period of twelve hours is sometimes exceeded; owing, first, to the plaster not being well applied; that is, to its being bound either too tightly, or too loosely. This is no unusual fault of a nurse, where the bandage is used instead of the sticking plaster. If it be bound negligently, it soon loses its contact with the skin; and, consequently, cannot act upon a part it does not touch; if bound too strictly, the effusion of serum between the true and false skin, cannot take place; for the latter cannot separate from the former, owing to the mechanical force of the bandage, being too great. A well-skilled nurse is aware of this; and will bind the plaster only tight enough to secure its contact with the surface over which it is placed.

124. Or it may proceed from an exhaustion of the excitability of the skin itself, as intimated above. This is no uncommon condition of the skin in fevers; that are disposed to terminate speedily in death; as is witnessed in the yellow fever, or in high grades of bilious fevers. It also takes place when fever is long protracted; especially, where the nervous energy is much impaired. And it also happens from a rare, though not without example, indifference, or want of susceptibility, to the action of cantharides.† In either of these cases, the cause should be sought for, and removed if possible. In the first case, the remedy is as easy, as it is obvious; in the second, an attempt should be made to re-

* It is found every way sufficient for the intended purpose, that if inflammation be excited, the process to effusion will go on, if the part be dressed with the yellow basilicon.

† We once attended a young lady, on whose skin we were very desirous of exciting vesication; we tried, for this purpose, every form of blistering ointment or plasters we could devise; we permitted them to remain upon the part forty-eight hours at a time; we excited redness and irritation, by the spirit of turpentine, or by mustard, and then applied cantharides, but all to no purpose; vesication could not be produced. This was not the result of a single trial; for we persevered in our endeavours, altering the combination of the cantharides, and the preparation of the skin, every day or two, for a fortnight.

store, or to create in the part, a brisker circulation, or an improved state of sensibility, by frictions, with the substances named above; in the third, there is no remedy that we know of; we can only substitute the pure ammoniated water, spirit of turpentine, mustard, or Cayenne pepper.

125. Many nurses are in the habit of placing a piece of gauze, or very fine muslin, between the blister and the skin. We have never perceived the advantage of this plan, though there is nothing objectionable in it, provided the interposing substance be sufficiently thin, and the surface of the plaster sufficiently moist, to permit the cantharides to come in contact with the skin. The reason assigned for this practice, is, that it prevents strangury; but this is certainly a mistake.

126. It will be well to remark, that in fevers, without any apparent local inflammation, the good effects of blisters, arise more from their effect upon the nervous, than upon the sanguiferous system; consequently, that their peculiar irritation is more valuable than the discharge they produce. It will, therefore, happen, occasionally, that we desire only the inflammation they may excite; as in cases of great debility, or of periodical or local pain. To insure this, the blister must be examined from time to time; and removed, as soon as the skin is well reddened. In the first case, it should be tightly bandaged, when the part or parts, are either the upper or lower extremities, which will spare the debility arising from the discharge.

127. It may also be important to remark, that where blisters excite so much local inflammation and irritation before the usual period for their drawing as to render it desirable to interrupt them, that the plaster may be removed as soon as this condition of the skin is well established; and that the effusion of serum may be insured by dressing them with basilicon ointment, or even by the application of a soft bread and milk poultice.

128. When blistering is prescribed for the legs, it must be understood, that it is the inner sides of the calves that are meant. Blisters intended for any part of the extremities, should always be longer than broad; and the length of the blister, made to correspond with the length of the limb, when applied. When the thighs are named, the central portion of their inner surface is to be considered the spots. When the arms are designated, the inner parts, extending from below the flexure of the elbow joint, to a sufficient distance above the hand, are the places intended to be blistered. By this arrangement the pulse can be commanded.

129. When ordered for the chest, the place will be indicated by the seat of pain, when local affections are present—when the chest generally is involved, the anterior portion of the thorax is

the place. The extent of surface to be occupied by the blister, will depend upon the extent and force of the disease.

130. When a blister is designed for the neck, all that portion of its back part, from an inch, or little more sometimes below the hair, to nearly the lower extremities of the scapulæ or shoulder-blades, is the part intended. When for the ears, the hinder and inferior portion of them are to be understood. When for the region of the stomach; all the space below the extremity of the sternum or breast bone, (but inclining to the left side,) to near the umbilicus or navel is the part. When for the abdomen, nearly the whole of the surface; or in confined local affections, only a portion of it is to be understood. When for the temples, the space immediately posterior to the termination of the eye-brows are to be selected.

131. The shape of blisters vary, as much as their size; the latter will always be determined by the size and age of the patient; comparatively small in very young children; larger in those more advanced, and so on; the former must in some measure be determined by the part designed for their action.

132. As it is important that some general rule should be followed, we will lay down the following measurements as guides for the size of blisters; remarking, however, that a large blister gives scarcely any more pain than a small one, but is oftentimes more efficacious.

133. For the legs or thighs, from 7 to 8 inches long—from 3 to 3½ broad.

134. For the back, from 7 to 8 inches long—from 4 to 4½ broad.

135. For portions of the chest, from 7 to 8 inches long—from 6 to 7 broad.

136. For the thorax, from 8 to 9 inches long—from 7 to 8 broad.

137. For the stomach, from 8 to 9 inches long—from 6 to 7 broad. For the stomach, the greatest measurement must be placed from side to side.

138. For the abdomen, from 10 to 11 inches long—from 8 to 10 broad, if the whole is to be covered; of proportionably less dimensions if the application is to be partial.

139. For the ears, the size cannot well be defined, as their shape is peculiar.

140. For the temples, from an inch, to an inch and an half in diameter; these are generally made circular.

141. These proportions, are the sizes for adults—but must be reduced for younger people, or small children. As the shapes of blisters differ, we shall give drawings of them, (see Plate I.) which will remove every difficulty.

142. Dressing of the blister after it has drawn, forms another of the duties of the nurse; the saving of pain, or other inconvenience from the operation of a blister will very much depend upon the skill and dexterity of the dresser. But before this operation is proceeded upon, every thing necessary to the purpose should be in complete readiness. The plasters should be spread; the bandages ready; a pair of well-cutting, sharp-pointed scissors should be provided, as well as a quantity of soft linen rags.

143. Every vesicle upon the blistered surface should be carefully snipped with the points of the scissors, unless they are very small and numerous; if this be the case, let only the larger be opened, as the small ones will most probably increase in size by the next dressing, and will then give less trouble. The skin should never be removed from the surface of the blistered part in acute diseases, however desirable it may be to keep up a discharge for a short time; for the irritation and pain which this creates, is but ill compensated for, by the increase or continuance, of the discharge it may excite—it is much better to reap-
ply the blister for this purpose immediately after the part has healed, than to remove the cuticle.

144. A blister should never, or extremely rarely, be washed, though it is a very frequent practice among nurses. It is very apt to produce chilliness; it exposes the denuded part to the air too long; it is fatiguing to the patient; it is always a tedious process; and above all, it never does good. At the first dressings, the professed object, is the removal of any particles of the flies that may adhere to the surface; but if there do remain some few, they are almost certain to be attached to the dead skin, to which they can do no harm, and will be removed at the subsequent dressings. If the blister has suppurated, the excuse is to remove the matter from it; than which there can be no worse practice; as by the operation of washing, the new and tender granulations which this matter is designed to protect, will be removed, and the place kept an open sore much longer than is desirable.

145. The dressings for blisters, will consist of either stimulating or soothing applications, as it may be the object of the prescriber. If it be desirable to keep up a discharge, the surface may be dressed with the basilicon ointment—if this be not in view, simple cerate is to be used.* Either of these is to be *thinly*†

* Wilted cabbage leaves are the most common dressings out of large cities—but they should never be employed, as they quickly become extremely offensive and annoy the patient very much—we have known fainting to be produced by a dressing of cabbage leaves.

† A great error is generally committed in spreading all plasters for sores; it is supposed the thicker the better. Much inconvenience is created by this, as a large proportion of the plaster is sure to adhere to the sore surface, from which it is detached with much difficulty.

spread upon soft, fine linen rags, and repeated twice in the twenty-four hours; or only once if the discharge be small. It is always best to have plasters or dressings, cut into several pieces, when the surface of the sore is considerable, as they will set much better than a single piece, and not get into folds; the plaster should very little exceed in size the surface of the wound.

146. Blisters now and then become extremely painful and inflamed; this condition is generally best subdued by a soft bread and milk poultice, in which is melted a small portion of fresh hog's lard, or newly-churned butter, before salt has been added. Or linseed oil and lime-water may be tried if the poultice fail. They also become extremely itchy, and thus prevent sleep—but this only takes place during the healing process; that which has succeeded best with me for this itching, is a strong infusion of the slippery elm bark, or flaxseed; or very fresh hog's lard in which some laudanum is incorporated. The part to be washed with either of the former when the itching is troublesome, and to be covered with the last by having a rag well imbued with it. Strangury is another consequence of the action of a blister; in some constitutions, this almost always takes place. We shall treat of this affection in another place.

14. *Of administering Injections, &c.*

147. The value of these remedies are only beginning to be properly appreciated in this country. They have had to contend against much prejudice to gain their present consideration. An injurious and fastidious delicacy has prevented their general employment, especially out of our cities; and it is only within a few years even in our cities, that they have been looked upon as prompt and efficient remedial applications. They have been regarded as extreme means; and by some, even more so than blisters; and others will not submit to them, however necessary, or however certain their utility might be.

148. For the good of the afflicted, we hope this prejudice will soon wear away; and that they will be looked upon as indispensable medical, as well as domestic remedies.

149. Much of the objection to injections has arisen from the incompleteness of the apparatus for their administration; from the mal-adroitness of the operator, and from the disgusting materials in many instances of which they have been composed.

150. The first of these objections is now entirely removed, by the improved method of constructing them; and though this has in a small degree increased the price, they are nevertheless very much cheaper in the end than those of common fabric. We would therefore recommend in the most earnest terms the pur-

chase of the improved patent injection syringe. They are so well constructed in all their parts, as never to disappoint in their operation, or scarcely ever get out of repair—whereas with the common the reverse is constantly taking place. It would be best as a general rule to procure the two sizes, though this is not absolutely necessary in skilful hands; for we have seen an injection administered to a child from a large syringe, with as much address and certainty, as if it were of the smaller size; for the piston and cylinder are fitted so exactly to each other, that an injection of no greater volume than a table-spoonful can be as certainly administered, as one of larger size.*

151. The second objection to injections should never exist, if a professed nurse is to be the operator; for it is as much a part of her business as any other belonging to her art; and she had as well be ignorant of any other important detail as this. Her want of cleverness in this particular, should have no other excuse, than a want of experience; and if she lack this, she is an improper nurse, and should only be employed as a dernier resource. Besides, there is no excuse for ignorance upon this point; for it is the simplest of all operations; and once having performed it, it can always be performed.

152. The third objection is fast wearing away; as enemata are now for the most part made to consist of but few, and oftentimes of but very simple materials. Soot, soft soap, fish brine, train oil, and other disgusting substances, are now yielding to plain water and salt, flaxseed tea, starch, &c. &c. It is now no longer considered necessary to make them very complicated, as was sometimes formerly done, and is even now, in some places. We were informed, and by good authority, that a European practitioner had an injection made of no less than two-and-thirty articles; an half day was nearly spent in collecting the ingredients, and it required a preparation of several hours before it could be administered.

153. The importance of injections is never more manifest than in cases where it is every way important that a sudden discharge from the bowels is necessary; where the stomach is too irritable to retain any thing; where it is desirable to make an impression upon the nervous system without disturbing the stomach; where a direct application is to be made to the affected part, as in dysentery and diarrhœa; or as near to the part as possible, as affections of the uterus, &c.

154. The purgative medicines are sometimes most success-

* These improved syringes can be procured at almost any of our druggists. They are now made perfectly well in New York; and many of our apothecaries keep them—inquire for the best New York syringes.

fully administered in this way; and the anodyne and antispasmodic, with great certainty. As a general rule, the two last must be used in triple quantities by injection. Besides the qualifications enumerated above, the professed nurse should also be well skilled in certain parts of cookery; especially such as are proper for the patient during the continuance of the disease. We shall in another part of this work, give recipes for some of the more important articles of food and drink; for on their proper manipulation much of the comfort of the patient will depend.

15. *Of the Management of Convalescence.*

155. The management of the patient after the cessation of fever, or the commencement of, and during convalescence, is one of the most important points in the treatment of disease; yet, unfortunately, it is one that is the most neglected; or to which, the least attention is given. A neglect of the proper observances at this time, has been but too often productive of the most serious injuries; either by producing a relapse; or the production of a new disease.* And, first, of a

Relapse.

156. The highly excitable condition in which the system is always left after an attack of any acute disease, renders it extremely liable to its return from very slight provocations; it is, therefore, of the utmost consequence to become well acquainted with the causes that may be capable of this effect. These will be found to consist in the administration of either improper articles of food, and drinks; or in the too early, or improper exposure to the weather, &c.

157. The extreme anxiety to prevent, or to overcome "debility," (23) as we have observed before, has been, without the slightest exaggeration, the death of thousands—upon this point, we have no mental reservations; we mean what we have de-

* "If it be right for the physician to snatch from impending death the patient confided to his care; if it be his duty to be lavish of his attentions to him in the moment of danger; the task that remains to be fulfilled during convalescence, though less brilliant in appearance, is however not less important, or less difficult. Like the vessel that has escaped with much injury from the violence of a tempest, convalescence, is but ill calculated to brave new dangers; it requires both a skilful and judicious pilot to navigate it safely in the midst of rocks which surrounds it. It is not without reason that the physician who abandons his patient during this period, is compared to a careless pilot, who takes no care of his vessel, at the moment he is about to enter port."—*Rennes' Considerations Générales sur la Convalescence.*

clared upon this subject should be understood in the most literal sense of our words; for nothing can exceed the sincerity of our belief in what we have advanced. To the want of caution on the part of the nurse; or to the importunities and suggestions of friends; or by people out of the profession, or sometimes from the waywardness of the patient himself, we may look for the cause of the solemn, and dreadful truth, we have just advanced.

158. It has ever struck us with surprise, that people who are altogether unacquainted with the structure of the human body, or with the laws which govern it, either in a state of health, or more especially, when labouring under disease, should take the awful responsibility upon themselves to direct, what is supposed by them to be proper, during the existence of disease, or when the system has just struggled through it. They cannot have weighed the extent of injury, that might arise from their advice; or they would not thus voluntarily assume the responsibility, of either immediately, or remotely, causing death, or a lingering disease. Yet, no one out of the profession can offer opinions upon the state of a patient, or suggest means for benefiting it, without incurring this terrible risk. (16)

159. So nice a point is this sometimes, that the physician himself does not choose to act upon his own individual judgment; on the contrary, he solicits the aid of a brother practitioner to aid it, and to divide responsibility. Yet, at this very moment of doubt and uncertainty; where the life of the patient may depend upon correct views being taken of his situation, we find people flocking to the bed-side, and fearlessly directing, that, which may, if their instructions be followed, cause death. This is no false picture; it has been witnessed by thousands, though unfortunately, it has effected no beneficial change in the sick room.

160. But strange to tell, there is no one who does not deprecate this kind of interference in the abstract; yet every body at the moment they have the opportunity to infringe it, flatter themselves that they become exceptions to the rule, and that, what they say or do, cannot be otherwise than right; or at least, that it cannot do harm. In no other concern of life, does the same docility occur—if the distribution of property, or the employment of money become the subject of advisement, much hesitation, and deliberation is exercised before the sought for, or proffered advice, is followed. If a coat is to be cut, or a pair of shoes or boots are to be made, the qualifications of the recommended, are carefully scanned, before they are trusted; but the business of sickness, or of health; or of life, or of death; are dismissed, with the most frigid indifference; and too often, the advice of one, totally incompetent to the task, is promptly adopt-

ed, to the neglect of that, given by one, who was every way able to direct.

161. We could wish that this subject should receive more attention than it has hitherto done; it every way merits the most profound attention; the public weal demands it; and it is the bounden duty of every individual to act up to the principles we are endeavouring to establish—namely, that all advice, and every departure from the directions of the physician, or the general rules established by him, is replete with mischief; and involves all who may advise, or who may depart, in a dangerous enterprise, or in an awful responsibility. How many orphans, widows, or desolated husbands, have to thank the officiousness of friends, for their sad condition—for to the advice, or the interference of those who had neither right, nor talent to direct, may they in too many instances justly look, for their misfortunes.

162. We are willing however, to believe, that the interference complained of, does not arise from any evil intention, or any absolute design, to thwart the plans of the medical attendant; but at the same time we feel, that the plea, of “no harm being intended,” is not sufficient to prevent mischief from following the interference; and, that it is certainly altogether inadequate to the repair of it, after it has been done. In such cases, every body should feel, that injury may arise from their advice, or opinions.

163. But to return. We agree, with the most inveterate “feeders,” that the ravages of disease should be repaired as speedily as is consistent with the safety of the patient; and consequently, every way willing that strength should be restored. We only differ in a most essential point, namely; *in the means*. Those against whom we are contending, suppose the more promptly the restoration of strength is attempted, the better; to effect this, they imagine that the most nourishing animal substances and stimulating diet are required. While we on the other hand insist, that the blood-vessels cannot well be filled too slowly; and that the nervous system cannot well be treated too kindly; for neither will bear but very little stimulation with profit, after they have been deranged, and perhaps severely deranged, by disease, and its necessary treatment. Hence, the necessity for some time, of the most bland or even vegetable diet.

164. With a view to illustrate this better, we will very briefly describe the condition of the body after a severe attack of a febrile, or other acute disease, that the application of stimulating food and drinks may be the better comprehended.

165. First, there must necessarily be, after illness, a great reduction of both the solids and fluids, of the body; and conse-

quently, that the first must be left in a state of great weakness; and that the vessels containing the latter, must be comparatively empty, as well as weak. Now, strength cannot be imparted to the solids, but through the medium of the nervous system, and of the vessels conveying fluids; the nervous system and blood-vessels can only do this, when their actions are healthily performed; and their actions can only be healthily performed, when they are properly filled, and duly stimulated. Therefore, any excess of stimulation will, from the increase of irritability, (which is always consequent upon a sudden reduction of the force of the body,) urge them to inordinate action. It will therefore follow, that over-nutritious food, or too great a quantity of that which is less so, will always invite a return of fever if given too early in convalescence; hence, the frequency of relapses after a full meal.

166. If this be true, it will follow as a legitimate consequence, that strength cannot be imparted to the solids, while the blood-vessels and nervous system are goaded to inordinate action; or to that degree of action, which is beyond the healthy bound; this condition will necessarily be followed by a state of inertia, or weakness; and this in the precise ratio of the over-action; therefore, instead of strength being increased by this plan, it is constantly found to be diminished. But this is not all; it too frequently happens that fever is rekindled, and a complete relapse is established.

167. Second. The stomach, like every other portion of the body suffers a loss of vigour from illness; consequently, its digestive powers are diminished; therefore, when food of too nutritive a kind is offered to it, one of two evils must necessarily arise. First, that the stomach, from the reduction of its powers, will not be able to convert it into nourishment; and if it do not, it remains an undigested mass within it, which sooner or later must, and will be disposed of, either by vomiting, or by diarrhoea; neither of which will contribute towards the strength of the patient. Or, what virtually amounts to the same thing, if too much of a substance less nutritive be given, the same consequences are sure to follow. On the other hand; if the stomach have been capable of mastering the whole of the mass offered to it, too much nourishment is formed; and will be introduced too suddenly into the weakened, irritable, and the easily distensible blood-vessels; in consequence of which, fever is for the most part rekindled.

168. Equally, but more suddenly injurious, is the exhibition of stimulating drinks of every kind; they excite to inordinate action, both the nervous and sanguiferous systems; and too certainly reproduce the disease from which the system has just been

freed. On account of the certainty and suddenness of their influence, they are more decidedly injurious than animal food; and therefore, should be still more cautiously withheld.

169. Third. Illnesses of the acute kind, are constantly followed by a weakened tone of the whole circulating system; hence, we find a smaller, but a quicker pulse; the quickness appearing to be a constant attendant upon the diminution of power. Hence, one of the surest presages of returing power is, the diminution of the frequency of the pulse, and an increase of volume in the artery. From this it would appear, that an increase of the circulation is not favourable to the state of convalescence; for strength is not acquired, during its continuance. Animal food, or other stimulants, when improperly exhibited, increase the circulation; therefore animal food and other stimulants must be injurious; because, they increase the rapidity of the circulation.

170. It is true, that the too early use of animal substances, or of stimulating drinks, do not always occasion a relapse; but should they not do this, they are very often far from being harmless; for effusions in various parts of the cellular membrane are very sure to follow, if a genuine dropsy be not the consequence.

171. This is not the proper place to explain at length, the cause of this swelling; we shall merely observe, that it is an almost constant law of the sanguiferous system, to unload itself when oppressed by too great a quantity of fluid, by pouring out a part, into the interstices of the cellular membrane and serous cavities. This is witnessed in the drawing of blisters; in dropsies of the brain, chest, &c. &c. Now the same thing takes place, when the blood-vessels are suddenly over-charged from any cause; and it is perfectly familiar to every observing person, that it happens to those who have been too quickly put upon an over-nutritious or stimulating diet, when recovering from illness.

172. We are not ignorant, that it is altogether contrary to common opinion, that dropsy or dropsical swellings, can be produced by any other cause than weakness—hence, we hear of people being purged, dieted, or bled, into a dropsy; but never that they have been fed into one. Yet the latter is a solemn truth; as the following little history will clearly prove.

173. A most amiable and worthy young gentleman, a particular friend of the author's, had been most severely attacked with pleurisy, for the cure of which he had been pretty extensively bled, and was of course much reduced in strength. So soon as his fever had left him, he was permitted to sit up; and as soon as he was able, he was permitted to walk about his chamber; so far so good. His appetite was feeble; and he remained

satisfied with the very moderate diet, that had been prescribed for him during the continuance of the disease. He was now rapidly recovering strength; and was thought by his medical attendant to be in a state of happy convalescence. At this time, his kind and attentive physician, was under the necessity of leaving the city for some days, and as he was gaining strength, and flesh, as fast as was, (rationally,) desirable, he was left to the care of his nurse, with directions that his diet should be *a little more generous*.

174. The nurse thought, that the patient now only required the cook, as the doctor had taken his leave; and to prove herself faithful to her own opinions, commenced forthwith, with a well-seasoned beef-steak, and a glass of porter. At this time the author called on his friend to offer him his congratulations; etiquette having forbid before, any thing but inquiries at the door. We found him in high spirits; as the visit was very soon after the meal of beef-steak, and porter; he declared himself never better, and asked of the author, if he did not think, he would soon be perfectly restored—the only reply was, that he would do very well, if he took care not to eat himself into a dropsy; at which he laughed very heartily; at the same time declaring, it was for the first time in his life, that he had heard, that a man could eat himself into a dropsy. The caution was repeated; but it could not be enforced, for he was not our patient.

175. Soon after this he left the city for the benefit of country air; and in about three months returned to it, with confirmed dropsies of the abdomen, and chest, of which he soon after died. He informed us that he pursued the full diet, until he was brought to the state in which he was now found; and that after dropsy showed itself, it was thought proper to persevere in it; *as dropsy only could arise from debility*. To understand how great this error is, see Chapter on Dropsy.

176. To those who are disposed to listen, this case speaks volumes; and if practically acted upon, will be most useful. It clearly shows the certain, and terrible consequences of improprieties in diet, after the system has been reduced by an acute disease, and the active treatment essential to its removal. With these preliminary observations in view, we will lay down a few rules in conformity with them, for the government of the nurse.

177. First. That no animal substance, in any shape or form, should be given during the continuance of fever; nor very immediately after its cessation, lest it be invited to return by the over-stimulating quality of this substance.

178. Secondly. That after the cessation of fever of any denomination, a sufficient time should be given for the system to re-

cover from the habit, if we may so express ourselves, of forming it, (before any alteration be made in the diet.) For if this be not heeded, fever will almost constantly be reproduced, even by a small change in the articles of food.

179. Thirdly. Such fevers as have manifested a periodical movement, should be particularly attended to; because, there is no certainty that there will not be a return upon the next paroxysmal day; though it may have passed one period. Thus, a quotidian, after the paroxysms has stopped, three consecutive days at least should be permitted to pass, lest it may return;—either from the disease not having been subdued, or from the alteration produced in the system by the quality of the food. In the tertian, two paroxysmal days should be allowed to pass. In the quartan, one will be generally sufficient.

180. Fourthly. When, agreeably to these rules, a change in the food is decided upon, the choice at first should be of such articles as possess the least possible stimulus, of their class—or in other words, the transition from a mild vegetable, to an animal diet, should be as slight as the nature of things will permit. Thus, weak chicken water; weak beef, or veal tea; or the diluted juice of oysters, should first be resorted to.

181. Fifthly. That the above enumerated articles should be given in small quantities at a time, and repeated at stated intervals, both by day and night, if the patient be very feeble, provided, it will not interrupt important sleep. And care should be taken in highly excitable systems, to withhold, for a few days, animal sustenance, during the period the fever was wont to appear in its greatest force.*

182. Sixthly. That the patient should be confined, for at least three days, to the above prescribed articles, before the power of the food be increased; and when this is determined on, such substances should be selected, as will very little exceed in strength those already exhibited. These will consist of the soft ends of five or six oysters; a soft boiled egg; a small piece of boiled fish, or the cold custard. (See Art. Cold Custard.)

183. Seventhly. After this plan has been persisted in for three or four days, the patient may be indulged in a small piece of boiled mutton; the breast of partridge or pheasant; turkey, or

* By this we would wish to be understood, the time of day, at which the exacerbation was wont to take place. The reason for this caution is, that notwithstanding the fever has ceased to appear, yet there is a disposition in the system to be more readily affected by stimuli at the time of day at which the fever was accustomed to be the highest; and this condition will remain for several days sometimes. On this account, it is always best to give at these periods, the mild vegetable substances, the patient has been in the use of, during the existence of the disease, instead of the more stimulating articles, lately employed.

chicken. And after as many more, he may be allowed, a small piece of rare done beef or venison steak; mutton chop, or sweet bread. At this latter period, a tumbler of ale, or porter and water, may be given at noon, with the meal intended for this hour; provided no circumstance exists to render this substance improper; such as, its causing head-ache; flatulency; or sourness of stomach. Many are of opinion, that Port wine is always admissible after the cessation of fever; especially after those of an intermittent kind; this is one of the many vulgar errors that the physician has to contend against; and the sooner it is destroyed, the better. We have never seen the slightest good follow its use; though we have often known much mischief to be the consequence of its employment.*

184. Eighthly. During the whole period of convalescence, the bowels should be most strictly attended to—one evacuation daily is absolutely necessary; if this does not take place spontaneously, it must be procured by a simple rhubarb pill taken every night at bed time, (see Art. Rhubarb pills, at the end of the Vol.) But purging must be avoided most carefully.

185. Ninthly. The quantity of exercise should also be very carefully regulated; for there is no opinion more general, than, that the patient should take as much as he can possibly endure; than which, there cannot well be a more dangerous error. It is admitted, that a well-regulated plan of exercise will be highly serviceable, when the strength of the patient is such as to render it profitable; that is, when he can perform a certain quantity of motion, without producing fatigue. And the *effect* of motion, must always be the guide for both the repetition, and the degree to which it may be carried; for, if very little exhaust, that very little is too much. Therefore, when it is again attempted, it should be less than that, which had previously been followed by fatigue. This degree should be persisted in, until the muscles acquire sufficient tone to bear more; and when an additional quantity can be supported well, an increase should be admitted; and so on, until strength is established. By observing these rules, we are certain, that vigour, will be much more certainly,

* By this declaration, we wish to convey the idea, that in our opinion, there is no particular virtue in Port wine, that would remove it from the ban under which we have put the whole class of diffusible stimuli at too early a period of convalescence. And that when it has been employed too early, under the impression that it possessed some specific quality favourable to that particular, and highly excitable condition of the system, that we have witnessed much injury arise from its use. We do not wish to withhold this article from the invalid, at the time wine of any denomination might be proper; for if he prefer it, he should be indulged in his choice. It may not be amiss, however, to remark, that there is no wine that comes to this, or any other market, that is so uniformly adulterated, or so rarely found good.

and speedily acquired, than if the contrary plan be pursued. The exercise here alluded to, refers entirely to that, which can, and must be performed, within doors. For the invalid must commence with exercise in the house, before it will be eligible to exercise out of doors.

186. Tenthly. As it is every way important, that the patient should have the benefit of fresh air as early as possible, we will attempt to lay down a few rules for his indulging in it.

187. 1. The patient should never be allowed to exercise out of doors, before he is capable of walking about his floor for some minutes without any great fatigue; or in other words, until he has complied with the regulations of direction ninth. It is always well to destroy, as early and as effectually as possible, every unpleasant association connected with the suffering of the patient; therefore, as soon as he is able, it is proper to remove him during the day into another room; while the one he was confined in is refreshed by cleansing and the admission of fresh air. Even the vials, pill-boxes, &c. which have accumulated during illness, should be removed from the sick room, the moment there is no further use for them; and the whole appearance of the room should be changed as much as practicable, that the patient may not have gloomy, or painful associations, connected with the things with which he had become so familiar during his illness.

188. 2. The weather should always regulate every attempt at exercise without doors; for if it be bad, that is, windy, cold, very hot, extremely wet, or very dusty, the invalid should not venture abroad during the continuance of either of these states of the atmosphere or roads.

189. 3. When strength will justify exercise abroad, it should always, when practicable, be first performed in a close carriage; regulating its closeness, by circumstances, that will at once present themselves.

190. 4. It should constantly be borne in mind, that when exercise is carried to fatigue, that injury, instead of benefit, is constantly the consequence—and this is almost sure to happen in the first attempts. This arises in most instances, from its not occurring to those who may have charge of the invalid, that he has to return over every inch of ground that he has already passed, which in the outward progress was not thought of. We have seen from this cause many instances of great suffering from exhaustion; and thus, every advantage which well-regulated exercise had promised, has been entirely defeated.

191. 5. The invalid should, upon every occasion of this kind, be carefully provided with additional covering; lest, in our fitful climate, a sudden transition, from a higher to a lower tempera-

ture take place during his absence, and thus be exposed to the risk of taking cold.

192. 6. As soon as renovated strength will permit, the patient should, in properly selected weather, use the best of all exercises—namely, walking. By this, every muscle of the body, is made to bear its proportion of expenditure; and at the same time receive, its proper quantum of benefit. This kind of exercise is particularly valuable to those, who have tardy bowels; (a condition by the by, common to almost all, who are recovering from acute diseases,) for the employment of the lower limbs, and of the abdominal muscles, gives the intestines a more certain, and uniform action, by their mechanical pressure upon them.

193. 7. The utmost vigilance should be exercised, that the invalid does not expose himself to currents of cold, or damp air; and that he be made to avoid sitting, or going into damp places, especially if his skin be disposed to moisture, from, either remaining weakness, or from its having been excited by exercise. He should not take a full draught, of the most grateful of all beverages, to the convalescent, namely, *cold* water.

194. 8. A convalescent should pay strict attention to the following important, though apparently insignificant rules of conduct during, and after eating; first, not to take but little fluid of any kind into his stomach during his meals, nor immediately after; second, occupy as much time as can reasonably be spent, in the mastication of his food; third, not to exercise too soon after any repast; but especially after dinner; and fourth, not to sleep either too soon or too long, after either dinner, or his afternoon meal; fifth, to eat no supper.

195. 9. If the patient be recovering from illness in the fall of the year, or in early spring, let him wear flannel next to his skin, if he has not already been in the habit of doing so; but especially, let him protect his lower extremities well, by warm stockings, and sufficiently thick boots or shoes—the former however, are always to be considered preferable to the latter; as they more effectively protect from cold, a very sensitive part of the body; namely, the ankles.

196. 10. Let him avoid with the greatest care, the several substances, almost constantly presented to the invalid, because they are thought to be highly nourishing, and most easy of digestion; such as calve's feet, hartshorn, chicken and beef jellies.*

* Dr. Paris observes upon this subject, that jellies and other gelatinous substances, though containing the elements of nourishment in the highest degree of concentration, are not digested without considerable labour; first, from their evading the grappling powers of the stomach, and secondly, from their tenacity, opposing the absorption of their fluid parts. For these reasons, it is maintained that the addition of isinglass, and other glutinous substances, to animal broths, with a view to render them more nutritive to invalids, is a pernicious practice.

The nicety with which these articles are prepared; and the savoury nature of the ingredients which enter into their compositions, are sure to render them favourite articles with the sick; on whom, they are most indiscreetly *always*, and very often, most *injuriously*, urged.

197. When the composition of these jellies is examined, it becomes a matter of extreme surprise, that they can be presented to the sick, by any rational or thinking being, with the most remote prospect of their being useful. In the first place, the most insoluble portion of animal composition, forms the bases of these jellies; the smallest portion of which, in some cases is sufficient, as we have before declared, (177,) to recal fever and every other terrible consequence attendant upon it—this it will do from its mere animal nature. But what is superadded to this *glue*, for such it literally is? wine, and highly stimulating spices, besides, the more innocent sugar, and acid. Now, can any one with the slightest pretension to observation, believe, that this can be a proper compound for a patient labouring under fever, (be the reduction of strength what it may,) or for one, just recovering from it? we think there is no one.

198. But this is not all; we have only spoken of the highly stimulating qualities of the jellies—another very serious objection attaches to them; (one however, we shall not be able to persuade some, to believe they deserve,) namely, their great indigestibility. We are aware in this assertion, we are running counter to all belief upon this point; but it is nevertheless, not less true. We say and declare it, without the fear of contradiction from those, who are qualified to investigate the point, that the food in question is one of the most insoluble substances that can tax the powers of even a hale stomach; what then must be the difficulty to one, enfeebled by disease, and the operation of medicine? It were consummately to be wished, that these baneful articles, could be forever banished from the sick room.

CHAPTER I.

OF FEVER IN GENERAL.

199. HITHERTO no definition of fever has been given, which is free from all uncertainty, or ambiguity. It has always been so constructed as to make its essence consist of some one circumstance, or symptom, which rather betrays an hypothesis of the author, than an essential, on which we may implicitly rely. Strictly speaking, the term fever implies heat; but a mere increase of heat does not constitute fever, since, we may have a considerable augmentation of heat without the system labouring under this affection; and, on the other hand, we may have fever with a cool, nay, a partially cold skin, as sometimes happens in yellow fever.

200. Dr. Cullen says, in fever there is a sensation of chilliness, followed by an increase of heat; the pulse gives a greater number of strokes in a given time; while several functions of the body are more or less impaired, and the strength of the limbs particularly, is diminished.

201. Various writers have raised objections to this definition of fever; and especially Dr. Fordyce; but his cavillings have ended in a refinement, that rather perplexes, than elucidates. We are, therefore, disposed to adopt Dr. Cullen's definition, though it is confessedly imperfect. This disease presents itself under so varied a form, that we are obliged in many instances to abandon a great part of the best devised definition, and to rely upon the impression the bed-side examination makes upon certain of the senses, (as the sight and touch,) for a knowledge of its presence.

202. We may, however, in general remark in this class of diseases, that there are certain departures from what is termed the healthy standard; and that, though in fever there may not be an increase of heat over the whole body, we can rarely find a case in which there does not exist a partial augmentation; thus, we find certain derangements of the system, (which we believe the most fastidious stickler for definition would consent to call fever,) attended with cold hands and feet, nay, perhaps even cold legs and arms, while the head, the chest, and abdomen, may be preternaturally warm; or it may possibly happen, that only one of these parts shall have this increase of heat. The same uncertainty may happen with the pulse; its frequency by no means establishes fever; we may have a very frequent pulse

without fever, or an unusually slow one when it is confessedly present; and this may, or may not be, accompanied by an increase of temperature. The pulse may, therefore, be slow or frequent; strong or weak; hard or soft, with or without fever.*

* In a very late, and excellent "Treatise on Fever," by Dr. Southwood Smith, we find this subject particularly dwelt upon. The author has treated the mooted point, in "what fever essentially consists," with no less candour than ability. He has clearly shown, that no hitherto devised definition, solves this question. He very satisfactorily proves, that the phenomena of fever are not invariable; and that symptoms, "are only indications of *events*;" (that is, the pathological condition of organs;) and that "symptoms depend upon states of organs;" and that they are no other than "the external and visible signs of internal, and for the most part, as long as life continues, invisible conditions." He therefore insists, that it is "to the state of the organs that we must look for the *events* of which we are in search." He then asks, "are there any states of any organs that always exist in fever? Are these states constant? Are the organs affected constant; and can both be ascertained? If this can be truly answered in the affirmative; if it can be proved that there are certain conditions of certain organs which invariably exist in fever, in every type, in every degree, in every stage of it, we shall have arrived at a satisfactory conclusion relative to the first part of our inquiry"—namely, "What is the series of phenomena which constitute fever?" He makes the "order of *events*" to consist of, "first, derangement in the nervous and sensorial functions;" this he declares to be "the invariable antecedent;" secondly, "derangement in the circulating function;" this he says, "is the invariable sequent; and thirdly, derangement in the secreting and excreting functions," which he considers as, "the last result in the succession of morbid changes." From this view of the subject, he infers, that in every instance of fever, that there constantly and invariably exists, derangement in these three grand divisions of organs, and functions; and consequently, that "we are in possession of the true characters of fever." And also, that "we know the *events*; we know the order in which they occur; we know therefore what it is that constitutes the disease, and consequently, we know what it is by which it is distinguished from every other malady. No other disease exhibits the same train of phenomena in the same order of succession." Agreeably therefore to this view of fever, the symptoms which attend it, are but signs of the anormal condition of the three great divisions of the system, and which may vary almost infinitely, but that it is essential to fever, that the *events* just named should all exist, and follow, in the order just noted. For Dr. S. insists that "no other disease exhibits the same train of phenomena in the same order."—pp. 47, 48, 50. It may also be useful in a pathological sense, if not immediately in a practical, to put those, who may not be able to command the work, in possession of Dr. Smith's distinction between "fever and inflammation," as their identity is insisted upon by some practical and pathological writers.

"Supposing the matter of fact be as here stated," (as regards the *events* and their invariable succession,) "it is clear that we are in possession of the true characters of fever." "In inflammation some of the phenomena are the same; but the order in which they occur is not the same; and this affords a clear and universally applicable mark of distinction between fever and inflammation. In inflammation there is similar derangement in the secreting and excreting functions; there is also sometimes similar derangement in the circulating function; but the derangement in the nervous and sensorial functions is seldom if ever similar; the derangement that does take place in these latter functions, while it is apparently different in kind, is certainly and invariably different in the order of their occurrence. In pneumonia, in enteritis, in hepatitis, the spinal cord and the brain are *never* the organs in which the *first* indications of disease

203. Lassitude, with more or less disturbance of the mind, almost invariably attend fever—and some evidences of debility almost always manifest themselves a short time before its regular formation; the last never fails to accompany fever; but its degree seems rather to depend upon the nature of the agent giving rise to fever, than upon the violence of the symptoms which may attend it. This can easily be illustrated, by comparing pleurisy with the typhus of Cullen, and other writers.

204. The order of the symptoms which attend fever, has given rise to the division of them into several kinds; and it is by observing the succession and continuance of their phenomena, that we are enabled to declare to which particular variety the fever in question may belong. Each of these varieties may require some difference of treatment, as shall be observed when treating of fevers individually.

205. But, notwithstanding the many kinds, or varieties of fever* made by some, they all have a general, as well as a particular plan of treatment; we shall, therefore, point out several important directions which will apply to every species, or variety.

appear. The earliest indications of disease that can be discovered have their seat in the affected organ itself; it is only after the disease has made some progress that other organs and functions are involved; and apparently, the last to be involved, and certainly the last to suffer, is the nervous system."

"We can now then answer the questions so often asked—are fever and inflammation the same? and if not the same, in what do they differ? Fever and inflammation are not the same; because the term fever is appropriated to designation of a certain number of *events* which occur in a certain series; the term inflammation, on the other hand, expresses another series of events, each *event* comprising this train, succeeding each other in a different order; and the difference between the two series of events is precisely this difference in their individual phenomena and in their order of succession. What the physical and physiological condition of the organs is, as contrasted with their condition in the state of health, has not yet been made out with regard either to fever or to inflammation—therefore in the present state of our knowledge, we can neither affirm or deny any thing respecting either the identity or the difference of that physical and physiological condition of the organs in these two classes of disease. What inflammation is beyond the series of events we are able to observe, we do not know; what fever is beyond the series of events we are able to observe, we do not know; we compare the events and we see they differ; and since the use of names is to mark and express differences, it is right to distinguish these different events by different terms. But though in our present state of knowledge we are not justified in considering fever and inflammation to be the same, yet the close, perhaps constant connexion between them, is a fact of the utmost consequence to be known, and requires to be incessantly before the view of the practitioner."

* We have already remarked upon the absurdity of multiplying the varieties of fever to the extent which some have done; especially, as practical utility is not advanced by it; for in the cure of fevers, all have to be treated more or less upon the same general principles; though certain of them, may exact a specific management.

206. As there is for the most part an augmentation of heat, it becomes highly useful to preserve a proper temperature in the sick chamber. (See p. 37.) Artificial heat should not be added to the patient through the medium of the air; therefore the fire, if in winter, or cool weather, should be so regulated, as not to raise the temperature of the chamber equal to that of the patient's body; by this means there will be a gradual subtraction of caloric; which will not only be very comforting to the sick, but very useful as a remedy. Artificial heat may frequently be very advantageously employed in such fevers, or periods of fevers, as are accompanied with a partial diminution of it—as in the feet, legs, hands, arms, &c. For, though we should deprecate its employment when a generally diffused increase of temperature existed, yet we shall find it very beneficial where the contrary obtains. For this purpose, warmed flannels, jugs or bottles filled with warm water, heated bricks, &c. may be used to the parts that are preternaturally cold, with decided advantage.

207. It is not only important to attend to the temperature of the room, that the air be not over-heated, but also, that this air is frequently renewed. (See p. 36.) In many situations it will require considerable caution, that the patient may not be exposed to a direct current—this of course must be guarded against in the best manner circumstances will permit—a door, or a window, or both, may be advantageously left open with a view to refresh the room; and this may be done even in cold weather, provided the patient be protected from its direct influence. This ventilation is especially necessary in small and confined rooms; and in warm weather.

208. The air of the room should be so regulated as not to have its temperature too much increased; nor to become stagnant, and loaded with the emanations from the patient's body; to guard more effectually against the latter, there should be no curtains to the sick bed. Should the situation of the patient's bed be such, as unavoidably to be exposed to a current of air, when about to ventilate the chamber, a partial drapery may be given to the bedstead, by hanging up a sheet, so as to intercept the draught—and this will always be sufficient.* And to preserve the air as

* Great care should be taken, that the patient be not exposed to a draught of air, while he is sweating, or even when his skin is moist, or when the temperature of his body is below the natural standard, and these perhaps are the only reasons for being particular upon this point. For when the temperature of the patient's skin is very much exalted, we do not see that injury can arise from cool air passing over the body, more than shall follow the sponging of it with cold fluids. Yet it is well to suggest the caution; as it will perhaps prevent the application of cold air, when it might be injurious, from the moist condition of the skin; or when the surface of the skin is too low in temperature.

much as possible from contamination, nothing that could do mischief to it, should be suffered to remain—therefore the evacuations of every kind must be removed as speedily as possible. No culinary operations should be performed in the room when it can be ordered otherwise—as all strong smells, especially those arising from cooking, are extremely offensive, as well as injurious, to the sick.

209. The floor of the room in warm weather should be kept clean and sweet, by passing a wet cloth over it once or twice a day—but the room is not to be flooded with water, for the purpose of scrubbing—the room may be much refreshed by having the floor frequently sprinkled with pure vinegar. Carpets,* especially in hot weather, should be removed from the floor; and when practicable, may be replaced by mats—even in winter, the carpet should be removed occasionally, and exposed to the fresh air—this in certain fevers becomes highly important, nay indispensable. This is particularly important in dysentery, or other affections of the bowels, as these articles retain the smell from the evacuations for a long time.

210. As there is in almost all cases of fever, a strong determination to the head, or head-ache, we should be careful to keep the patient as quiet as possible; and should delirium attend, we should guard with all possible care, against company, or any other circumstance, that might tend to augment it. To aid in this intention, the room should be kept as dark as proper ventilation will permit, and all objects should be removed, that particularly challenge the patient's attention. He must not see company; and as few faces should present themselves, as is compatible with proper and careful nursing. No unnecessary conversation should be indulged in; and above all, low whisperings must be strictly forbidden. When conversation is necessary, it should be carried on in a tone of voice, that will enable the patient, if he chose to listen, to comprehend it easily—this will save him much exertion, and will prevent much solicitude. As the patient always imagines himself to be the subject of the conferences, that take place in the sick room, it will readily suggest itself that, all unpleasant anticipations of the event of the patient's disease, must be avoided in his presence. (See p. 34, par. 65.)

211. It is erroneously imagined, that people labouring under fever, are extremely liable to “catch cold,” as it is termed; to prevent this, bed-clothes are heaped upon him almost to suffo-

* In cases, attended by delirium, or extreme head-aches, it may be useful to have the floor carpetted, as it diminishes the noise from walking. Indeed it is desirable, in all cases of fever, that the patient should be disturbed as little as possible by noise; that which might arise from walking, can always be obviated, by the attendants wearing socks, or very soft slippers.

cation—this is a mistake, and should be guarded against; for the patient should have no more clothing than is absolutely necessary to prevent his feeling chilly—all covering beyond this is both useless and injurious. The bed-clothing therefore should be constantly regulated by the feelings of the patient. (See p. 38, par. 89.)

212. To patients, labouring under fever, nothing is more acceptable than cool drinks, nor is there any thing more proper. An unfortunate and vulgar error prevails on this head. It is imagined that all the drinks for such patients should be warm, with a view, they say, of disposing to, or provoking perspiration; by this reasoning, the patient is deprived of almost the only luxury he dare indulge in, as well as debarred sometimes from an important remedy. We would therefore recommend that all the drinks of the patient should be cool; nay, sometimes cold—and this is easily regulated; as the degree of external heat of the patient should be the uniform guide. Nor are we aware, that there is an exception to this, but where the skin is moist, or disposed to be so. Where perspiration has taken place, or is just about to take place, the liquids should not be *cold*, although they may be cool.

213. For we have very often seen a profuse perspiration immediately follow a drink of cold water; and we never hesitate to administer it, when the skin is hot and dry, and the thirst great; nor even to repeat it from time to time under like circumstances. It however very often happens in the higher grades of fever, that the thirst demands more drink than the stomach can well support—for if cold drinks be too much indulged in, the stomach revolts, and a vomiting ensues. To prevent this, we are in the habit of giving small portions of *ice** from time to time. By this plan we secure to the patient, a more permanently cold application to the mouth; while the stomach enjoys all the advantages of cold water, without its oppressive weight and bulk. Or if ice cannot be commanded, cold water may be given by the spoonful, and repeated more frequently.

214. The drinks of fever patients should consist of such articles as are most palatable; but, at the same time they should be such, as are free from all stimulus, unless the latter comports with the particular situation of the patient; in this case it forms rather an exception, than a rule.† We should therefore say, that in all cases which do not require such stimulating articles, as wine, brandy, &c. to be added, (and these are almost all cases

* The ice should be broken into pieces of the size of a filbert, and placed at the command of the patient; and of which he may swallow freely.

† It will be seen, by the sequel, how very few the exceptions are to this rule.

of fever,) the drink should consist of toast water, baum tea, lemonade, current jelly and water, molasses and water with a little vinegar, the water off of dried cherries, very weak milk and water, barley water, flaxseed tea, either with or without lemon juice, sorrel water, &c. &c. We have purposely enumerated a variety of drinks, that the invalid may have a choice. But simple cold water, as just noticed, is almost always admissible, as well as grateful, especially when there is great heat.

215. Food should be administered with the greatest caution; and this refers not only to the quantity, but also to the quality—it should be of the lightest kind, especially in the inflammatory stages of the disease. Indeed, the patient frequently profits by the kind interference of nature, when she deprives him of all inclination to receive it. In this country, we are subject to many highly inflammatory diseases, in which, the more complete the abstinence, the more the patient profits. There can be no error more injurious, than the belief, that the sick are in constant need of nourishment. This prejudice has destroyed its thousands—and it is one of the first and most important rules to be learnt by those who have charge of the sick, that in the commencement of any acute disease, little or no food is required.

216. In no instance of fever, or any other disease of high action, is animal food, in any possible shape or disguise, as broths, &c. admissible—during convalescence, it may be useful.

217. When it is proper to administer nourishment in fever, it should always be given in small quantities at a time—say three or four spoonfuls either large or small, as the patient may be either large or small. It should consist of weak milk and water; thin tapioca; sago or arrow root; gruel, either of Indian meal or oat meal; ripe fruits in moderate quantities, when in season, such as oranges, grapes, or roasted apple, may also be given. Gum Arabic water, is perhaps one of the least exceptionable articles of diet we can recommend. A cup of weak tea or coffee is frequently extremely grateful to the sick; and may almost always be permitted.

218. We can scarcely be too particular in the body-clothes of the patient; they should be daily changed when the patient is not too much exhausted to permit this—the bed-linen should also undergo a daily removal when it is practicable; and especially in those fevers that end their paroxysms by sweat.

219. We have already intimated that much of the success in the cure of fevers will depend upon the promptitude with which remedies may be had recourse to; and upon the fidelity with which they may be administered; and these must be aided by the strictest attention to the proper regimen. Indeed, without the latter, the former would for the most part be entirely unavailing—much then depends upon the nursing as it is termed.

(See p. 31, par. 56, &c.) The intervals at which medicine is directed to be exhibited should be carefully attended to; as, a failure in this, has frequently defeated a well-devised plan of cure. A mistaken tenderness should not interfere with a prescribed or an imperious duty; nor should it interrupt the application of an important, though perhaps a painful remedy. There is a time or period in almost every disease, at which a remedy is the most important; but if this time be allowed to pass, from mistaken kindness, indecision, or neglect, it may perhaps never return. Therefore remedies, to be efficacious, must be promptly applied, and rigorously persevered in.

General Plan of Cure.

220. In fevers of almost every description, (as we have before declared,) that state of the system called inflammatory, prevails; and in the commencement of all, it would scarcely be too much to say that, a preternatural fulness exists; so that we rarely meet with a fever, on the onset of which, we do not find the blood-vessels more than naturally active. When the contrary obtains, it is almost always in some uncommon epidemic or southern endemic; and these only form exception to the rule. We have therefore almost always to contend in the early stage of fever with an augmented heat; increased pulse; perhaps with loaded stomach and bowels; our remedies must therefore be calculated to diminish the two first, and remove the latter.

221. These intentions are to be fulfilled by, 1st, cool or cold air; cool or cold drinks; and by such remedies, as are indirectly calculated to produce this end; 2d, bleeding; 3d, sweating; 4th, purging; 5th, blistering; 6th, tonics, &c.

*A. Of Cool Air and Drinks.**

222. We have already noticed the importance of fresh and cool air to the body of a patient labouring under fever, and we

* As the terms hot and cold; warm and cool, are relative, it may be well to offer a more precise meaning to them in this place. When speaking of cold or cool air, we should wish to be understood that degree of it, which would excite these sensations in the patient; thus when the body is heated to 108° or 110°, diminution of 15° would appear cold—should it be at 100° it will bear a greater reduction, before the sensation would be called cold; it would follow then of course that, the intermediate degrees would be called cool—when speaking of cold or cool drinks, we must be understood to mean in general from 40° to 57½° for the first; and for the second from 57° to 60°.

And further we would wish it to be understood, when we speak of the temperature of the air of a sick chamber, to mean that it should never exceed 62°, where practicable to keep it in this condition, during the hot stage of fever. If chill exist, there is no objection to a more exalted temperature for the time being.

now wish to be understood to consider this as not only highly refreshing to the patient, but as a valuable and active remedy. Whenever therefore the surface of the body is above the natural temperature, we should so employ this remedy as to remove this superfluous heat. To do this in the safest and most efficacious manner, we should permit the constant introduction of fresh air into the chamber; and the patient should be so situated as to derive full advantage from it, but without incurring the risk of a full stream directed immediately upon him, if his skin be moist. In hot weather however, this will require but few precautions; as the external air in some of our hottest days, is perhaps but little below the heat of the patient; in this case, no risk is run, in having a current directed immediately over him. To obtain this advantage, his bed should be removed to the most open part of the room, and his covering be as thin as possible. Where the temperature of the external air is considerably lower than the heat of the patient, it must be applied in such a manner as not to induce a sudden chilliness—and this can always be effected by giving a proper direction to the air, and accommodating the bed-cloathing to the state of the atmosphere. The sensation this regulation produces in the patient when properly managed, is that of the most delightful cordial. The degree of cold therefore, must be commensurate with the degree of heat, the patient has to spare.

223. In situations where cold air cannot be commanded, the application of cool or cold water to the arms, head, and body of the patient, by means of a sponge passed over them, will be found highly refreshing, as well as useful. But in the employment of these remedies, it must be recollected, it is never to be had recourse to while the body is sweating, or when the temperature of the body has been reduced by cool applications, (as sometimes happens,) so as to induce perspiration. The sponging must be now desisted from, until the perspiration disappear, and until a re-accumulation of heat make it again necessary. Should cough, or other affections of the chest attend, the sponging must not be thought of.

224. Cool, or even cold drinks, we have said, are most grateful and most useful in fever. In very hot weather, their temperature can be speedily and advantageously reduced by ice. In this state, they may with great propriety be employed, if they be exhibited in small quantities at a time, as has already been observed; the quantity, however, may be frequently repeated. The kind of drink has already been pointed out. The same precautions should be observed with cold drinks as with cold air, when the body is in a state of moisture from perspiration; but we need not withhold cold *drinks* if cough alone be present.

225. Fevers of every denomination, be their types what they may, frequently have sickness of stomach as an attendant. This nausea, or it may amount occasionally to vomiting, is always attributed by the attendants upon the sick, to "*a foul stomach*," and in their opinions, decidedly calls for an emetic. This, nine times out of ten, is an error; for this sickness, &c. only points out a state of irritation of this organ; and so far from its being relieved by an emetic, is almost certainly aggravated by it. In such cases, cathartic medicines of a moderately active kind should first be given, and if these do not afford relief, try, 2d, the direct application of such remedies as are known for their efficacy in such cases; and 3d, if these fail, counter-irritants must be used.

226. The first will consist of small quantities of calomel, followed if necessary by magnesia. For much advantage is derived in this condition of the stomach from small portions of calomel, repeated at short intervals, viz.

R.	Calom. ppt.	-	gr. viij.	Take Calomel	-	-	8 grains.
	Sacch. alb.	-	gr. viij.	White sugar	-	-	8 grains.
	M. div. in viij.			Mix, divide in 8 parts.			

One of these should be given every hour in a drop of syrup of any kind, or a little scraped apple, until they move the bowels.

227. But should this quantity not stir the bowels, and relieve the sickness, let two or three tea-spoonfuls of calcined magnesia in a little sweetened milk be given; or else, give an enema; indeed this may be profitably employed whenever the stomach is thus irritable, and the bowels tardy. It may consist simply of hot water and common salt, in the proportion of a pint of the former to a large table-spoonful of the latter. This may be repeated as necessity may require. Should this fail, it will be proper to employ the second set of remedies, and the milder of these should be tried first; these will consist, of small quantities at a time, of pretty rich gum Arabic water, (cold,) milk and water, in small quantities—that is, a table-spoonful every fifteen or twenty minutes; or we may use with almost a certainty of success, the following more complicated, but very successful julep.

R.	Bis-carbon. sodæ	-	ʒiiss.	Take super-saturated soda	1½ drachm.
	Pulv. gum arab.	-	ʒij.	Powdered gum arabic	2 do.
	Ol. minthæ	-	gut. iv.	Oil of mint	- 4 drops.
	Sacch. alb.	-	ʒij.	White sugar	- 2 drachms.
	Aq. Seltzer	-	ʒiv.	Seltzer water	- 4 ounces.

Of this, a table-spoonful may be taken every half hour or hour, as the necessity may be more or less urgent. If the Seltzer water cannot be commanded, simple water will answer.

228. Should neither of these answer, we must have recourse

to the third set of remedies; a few ounces of blood drawn from the region of the stomach, by leeches, will be found to be of decided use. This operation may, if necessary, be followed or preceded by a plaster of the flower of mustard and vinegar to the stomach until it tingles the skin smartly; or it may be useful to apply a blister, if the vomiting be obstinate.

B. *Of Bleeding.*

229. The employment of this valuable remedy in the commencement of fevers, is now so universal, that it has almost become a domestic remedy; and the number of cases in which it is useful, nay, essential, is so great that we may look upon it as almost indispensable. The prejudices which were so long entertained against it, have given place to the confidence, which experience has shown, it merited; and it is now in such general acceptance, that it is very frequently the initiatory remedy. The cases of fever in which this mode of depletion is inadmissible are so few, that we find almost a difficulty in pointing them out—at least in the commencement; and it is at this period, we are always presumed to refer, whenever we speak of remedies in general, unless the contrary is expressly declared.

230. Although blood-letting is almost universally prescribed for fevers in this country, it must nevertheless, be looked upon as a remedy of great power, and of course must be judiciously directed. For, that it may be employed advantageously, it must be used at proper times, in proper quantity, and under proper circumstances.

231. The proper time for bleeding, is for the most part at the period at which the hot stage of fever is completely formed—it should, therefore, never be used in the cold stage of fever;* nor when the paroxysm has subdued, or is about to subside. As a general rule, it should not be used during the sweating stage; there are, however, exceptions to this—as in certain cases of yellow fever; and also in some instances of common remittents, where the sweating does not mitigate the symptoms, or lower the pulse.

232. The quantity to be drawn is of much importance—on this, almost every thing depends; for if too little be drawn, which is by far the more common error, very little advantage is derived; and if too much be taken, mischief must necessarily

* The contrary of this has lately been recommended in such strong terms, by a physician in Great Britain that our opposition is something diminished, but not so much so, as to induce us to give it our concurrence. We are willing to acknowledge, that this may be prejudice; but until more experience shall establish its utility, we must abide by our present prepossessions.

follow. The latter, however, as far as our experience goes, is an accident of rare occurrence; and when it does happen, is much more easily remedied, in very severe diseases, than where too little has been taken at an important period of the complaint. As a common practice, where this remedy is necessary, we should permit the blood to flow, until it produces a manifest change in the feel of the pulse—the pulse should become quicker, smaller, softer, and fluttering, as it were, under the finger. It is to be remarked here, however, that, in this direction, we have reference to the intense forms of disease.

233. In the milder forms of fever, where the pulse is not much excited, but yet requiring the loss of blood from local determination, and especially, when this is to the head, we may content ourselves with a quantity, which shall merely diminish the strength and fulness of the pulse. But in cases in which the head is very much affected, it is for the most part a good rule, to allow the blood to flow, until relief is experienced. From this it will be perceived, that it is very difficult to direct the precise quantity of blood to be subtracted by any fixed number of ounces.

234. As a general rule, the blood should be drawn from a large orifice; in many instances, by an observance of this, the loss of less blood is found to answer, as the effects upon the system are much more decided; this is especially important in the commencement of the disease; and where it is presumable from its force, that much blood will be required. With such as may be disposed to faint, from the mere operation of bleeding, the precaution should be taken to bleed in a recumbent posture. But when this is not the case, and it is desirable to make a considerable impression on the sanguiferous system, the contrary should be observed, as the tendency to faint, is at times highly useful; especially, in those fevers in which there is very strong arterial action, with great determination to the head.*

235. The number of times a patient may be bled for the cure of fever, can never be pointed out in round numbers—the repetition must depend upon the force with which the disease manifests itself in the sanguiferous system—and this for the most part the pulse will indicate.

236. But the pulse is not always to be the guide, especially

* In general, in fevers, when either, from the peculiar nature of the disease, as an epidemic; or from the particular constitution of the patient, the determination of blood to the head is strongly marked by head-ache, or delirium, the position of the patient is no mean point to be observed. He should always have his head and shoulders so much elevated, as will bring the blood within the certain influence of gravitation. Indeed, this rule should always be observed in such affections of the brain or its appendages, as betray an excess of blood in them.

in fevers of regular paroxysms; for in these, the pulse might indicate in many instances the abstraction of more blood, when it might be safely dispensed with. But, if in these very fevers, there occurs strong local determination, and especially if this be to the head, as becomes evident by head-ache, or delirium, we should bleed again and again, if the force of the disease continue, or is but little abated; provided the pulse maintains a sufficient force and vigour, to justify the operation.

237. The circumstances under which we should not bleed, are those, in which the system is depressed by the cold stage of fever; or temporarily prostrated, by excessive evacuation. In the first case, the cold stage would be much protracted by bleeding; and the reaction of the system would be much delayed; or the powers of the system might so sink, by an ill-timed bleeding, as to be unable to react. In the second, the powers of life may be so reduced, that a fatal syncope might follow. Of so much consequence is it then, to attend to the circumstances under which we bleed. The accidents we have just noticed, might take place in cases, where bleeding might again and again be necessary, were the system allowed to react, or when not prevented from reacting, by the injudicious employment of this remedy.

C. *Sweating.*

238. There is no remedy so decidedly popular for the cure of fever, as sweating; and none, perhaps, has been more abused. As the healthy solution of almost all fevers has been effected by this process when allowed uninterruptedly to run their course; and as almost all fevers of regular paroxysms terminate by this discharge—it naturally suggested itself that, if we could imitate this process, we should sooner, and more certainly cure the disease. Accordingly, from time immemorial, this mode of cure has been attempted; but not always with equal success. It has always been a popular belief that, in proportion to the quantity evacuated by the skin, is the efficacy of this process; than which nothing can be further from the truth.

239. This vulgar error has proceeded from not discriminating, between the insensible perspiration, and that collection of fluid upon the surface, called sweat. It is not our intention to enter minutely into these differences, by giving their history or by inquiring into their causes; but simply to state that, while in many instances, a pleasant, soft, silky feel of the skin in consequence of the insensible perspiration being increased, shall relieve a patient in fever, a profuse and deluging sweat, shall totally fail of this end. In a number of instances we have known an overwhelming sweat to be followed by a hard, rigid skin, and

without the smallest diminution of the force of the arterial system, or the least abatement of the distressing and threatening symptoms. On the other hand, we have seen the whole system tranquillized and relieved by a gentle moisture breaking out either spontaneously, or produced by the exhibition of some proper remedy for this end. We may therefore lay it down as an invariable rule, as far as our experience justifies us in the assertion, that in no instance of fever, simply so called,* does profuse sweating relieve, as much as gentle perspiration. It follows, then, that this evacuation has been in too many instances indiscreetly urged.

240. In employing remedies with a view to promote perspiration, (for this is all that should be attempted,) we must regard with attentive care, 1st, the period; 2d, the state of the body as regards temperature; and 3d, the agents employed.

241. 1st. The period of the febrile paroxysm at which we attempt its solution by producing perspiration, is a matter of great moment; we must not commence our plan in the cold stage; nor should we be more successful at the formation of the hot stage, nor even at its height, unless proper evacuations have so much reduced the vigour of the pulse, as to render the operation of medicine probable; or unless the fever itself, it be of so mild a grade, that an impression can be made upon it by the exhibition of diaphoretics. It therefore follows, that, we should not exhibit any one of this class of medicines, while the pulse is full, hard, and frequent—for were we to do so, we should not only be foiled in our attempts, but have the mortification to see every symptom aggravated; for there is a “sweating point” of the arterial system, as well as a “sweating point” of temperature.

242. 2d. The state of the body as regards temperature.—From the well-conducted and conclusive experiments of Dr. Alexander, it appears that the heat of the body can transcend the “sweating point;” and that, when this is the case, it requires a reduction of temperature, before the sweating process can commence. He fixes this point at 108° , but we have reason to believe this too high, say 100° or 102° . It therefore follows, that to procure perspiration, the heat of the body must not exceed this degree of temperature; and hence it is, that many have been defeated in their attempts by increasing the heat by stimulating drinks, and by additional bed-clothes, beyond the “sweating point.” And hence it is, that, a drink of cold water, has many times proved the best diaphoretic, by suddenly bringing down, or reducing the heat of the body to the “sweating point;”

* In acute rheumatism, sweating is *sometimes* highly useful, but not always; but this is a disease very different from fevers arising from marsh effluvia, or other causes capable of producing simple fever.

and that, by sponging the body with cold water or vinegar, perspiration has been immediately excited. It may, therefore, be laid down as a rule, that all attempts to procure perspiration will be unavailing, if the heat of the body exceed 102° .

243. 3d. As regards the agents, they must be accommodated to the state of the system itself—and this will refer both to arterial action, and temperature. We have already noticed that, there is a choice of period, in the paroxysms; and also, that regard must be paid to the condition of the pulse; and we will now add, that, whenever the hot stage is attended by a vigorous pulse, and strong local determination, especially to the head, every attempt to procure a diaphoresis will not only be unavailing, but injurious; and that the system must be properly prepared, (if we may so express ourselves,) by bleeding, purging, &c. before an attempt of this kind be made. As a general rule, when there is considerable vigour in the system, the antimonial preparations will be the most eligible; and if accompanied with much heat, nitre will sometimes be an useful addition.*

244. If there be but a moderate degree of vigour in the pulse, or if it be soft, opium is a highly important drug. This medicine seems to merit a decided preference in all the more protracted forms of fever, or where the powers of the system have been pretty much expended; and in all those of weak action, even in the commencement, provided, there be no determination to the head, to cause head-ache, drowsiness, or delirium. The proper time for its exhibition is at the early part of the hot stage. It should be given in such quantities, and at such intervals as to make a decided impression; but not so much as to have its narcotic effects predominate; nor should the frequency of exhibition be such, as to subject the system to this part of its influence. We therefore hold it wrong to give it, either in such a dose or doses,

* The combination of nitre and tartar emetic, is sometimes employed with great advantage in cases, where there is a hot dry skin; much thirst, and head-ache; and where the pulse is yet too high for the exhibition of opium, but not sufficiently so, as to render blood-letting proper. And it is especially useful, when the bowels are tardy; as the addition of a little calomel, gives great efficacy to its power over the bowels; particularly, where it might be objectionable to give a cathartic expressly. The following formula is one in common use:—

R.	Sal. nitri	-	-	ʒiss.	Take Nitre or saltpetre	1½ drachm.
	Emet. tart.	-	-	gr. j.	Tartar emetic	1 grain.
	Calom. ppt.	-	-	gr. viij.	Prepared calomel	8 grains.
	M. et div. in viij.				Mix, and divide in 8 parts.	

One of these powders to be given every two hours, mixed in a little roasted apple, or syrup of any kind. If they operate on the bowels too much, they must be suspended.

as will subject the brain to its anodyne powers; for whenever we induce this tendency to coma, we unnecessarily prostrate the system. The powers of opium, when administered with a view to produce perspiration, are decidedly augmented by the addition of some other substances; and perhaps one of the very best forms, is that of Dover's powder.*

245. We have, however, seen cases, in which the internal exhibition of remedies have failed to procure perspiration, however eligible in kind, or however faithfully persevered in; yet it has been quickly excited, by external applications. One of the simplest, and at the same time, one to be most relied on is, the vinegar vapour. This appears to be particularly successful in those cases, where there is a dry, hard skin, without excessive external heat—for we have known it to be a powerful auxiliary to opium, when there has not been a sufficient or regular distribution of heat to the surface. It should never, however, be used when the temperature is above the "sweating point," nor where the external heat is easily augmented, by any additional stimulus.

246. In conducting the sweating, no inconsiderable care is required, that its utility may not be defeated. We have already said, our aim should be, to produce a gentle transpiration, but not a profuse sweat. Therefore whenever we find it transcending this condition, we should abate it, by the removal of some of the covering. And when we find this sweating is not produced, pretty soon after the exhibition of medicine; or by external applications, we should carefully examine the state of heat of the patient's skin—if this be very hot, we can only induce perspiration by its reduction; this must be attempted, either by a removal of the bed-clothes; by the use of a large draught of cold water, or by sponging.

247. The length of time that sweating should be kept up, must depend very much upon its quantity; by its effect on the pulse; or the sensations of the patient. We have noticed that, a profuse sweat is not desirable; and therefore, when this happens, either from the bad manner in which it has been conducted, or from some peculiarity of the patient, we should endeavour to check it by a removal of some of the bed-clothes; by the admission of cooler air into the room; or by taking away the external

* Recipe for Dover's powder:—

R. Pulv. ipecac., Pulv. opii., āā.	℥j.
Sulphate of potass - -	℥viij. M.

Ten grains of this powder is considered a dose—it should be mixed in a little syrup or gruel, and the patient should not drink any thing for an hour after its exhibition.

means, if any should have been employed to excite it, and by abstaining from warm, or hot drinks.

248. Should the pulse be much reduced in force and frequency by this means, even soon after the breaking out of the perspiration, we may prepare to check it by the plan already suggested. Or should the patient become very faint, exhausted, or extremely restless under its influence, we should not persist in its continuance.

249. After the patient has been subjected to the sweating process, all the clothes which surrounded him should be removed and replaced by fresh linen, &c. as soon as he is dry. This is a matter of considerable importance, and where practicable, it should always be complied with.

D. *Purging.*

250. In fevers of almost every description, purging is not only useful, but in many, is indispensable. There exists constantly a want of equilibrium in the circulatory system, whenever the body is attacked with fever—and the determination for the most part is, to the brain, the liver, the spleen, or to the lungs; and few remedies are found so effectual in restoring this disturbed balance, as well chosen, and properly adopted aperients. Besides the determinations just mentioned, fecal matter in the bowels, is constantly accumulating, which it is of much consequence to remove. Occasionally there will be a redundancy of bile; at other times a deficiency; and we are obliged sometimes to remove the one, or to solicit the other; and both of these ends are answered by the proper choice, and exhibition of cathartics, of the aperient or laxative kind.*

251. Purges, besides clearing the intestines of offensive matters, cause to be discharged into the bowels, a considerable quantity of the fluids, natural to these parts; and thus serve the double purpose of removing the fecal contents, and evacuating at the same time from the general system. For effecting these purposes however, some cathartics are much more valuable than others; consequently there is a considerable choice. We shall not enter more fully into a detail of them than we have already done; designing, in the treatment of each disease, to point out

* Cathartics, signify such medicines as quicken the peristaltic motion, thereby inducing a more free evacuation of the bowels. But as this class of medicines differ very much in the capacity to provoke this increase of motion of the intestines, they have been very properly divided into laxatives or aperients, and purgatives. The former are such as act gently upon the bowels, as castor oil, magnesia, rhubarb, neutral salts, as Epsom or Glauber, &c. The latter are such, as act with more violence upon the bowels, as calomel, jalap, senna, &c.

the proper cathartics, as these remedies may be necessary for the particular disease under consideration.

252. The management of cathartics must be regulated, 1st, by the state of the system in general, and of the bowels in particular; they are indicated when the system maintains its general vigour, and where the bowels are still loaded, or not sufficiently cleansed—the pulse will direct in the one instance, and the appearance of the evacuations in the other. The regular inspection therefore, of these discharges is a matter of much moment; and should never be neglected by those who may have the care of the sick—for, it is not always sufficient that the patient should frequently require the pan; for these calls may be for the discharge of thin, watery fluids, and not for the evacuations of feces—and sometimes such is the operation of purgative medicines, that they will excite the bowels to frequent action, without removing the offensive matters contained in them. On this account we recommend the regular inspection of these discharges, that we may not be deceived in a matter of such moment. (See par. 93, &c.) There is sometimes a strong popular prejudice against purging, that we would gladly remove; namely, that they are “very weakening.” Purging, like every other evacuation, may be carried too far; and then with strict propriety it may be said they are “weakening”—but this is only the abuse, or mal-administration of the remedy. In many cases of fever, the patient is so far from being weakened by being purged, that he is *absolutely strengthened* by it.* And again, it is frequently said, when these medicines are about to be administered, that they “cannot be necessary, for there is nothing inside of the patient to bring away;” and as a proof of this, they will declare “the patient has eaten nothing for a number of days.”

253. This popular language and feeling, must be disregarded, if we do not mean to injure the patient; especially, where attention has been paid to the quantity and nature of the discharges; and where we are convinced, from these inspections, that much remains to be removed. For we have frequently seen, after the purging process has been continued for a considerable time, and where the friends of the patient were convinced there was “nothing inside,” large, hard, and fetid evacuations have succeeded those “watery stools,” and the patient has been almost immediately restored to health. We could say much upon this important subject, but our limits will not permit us.

* This has been repeatedly exemplified in yellow fever. We have known patients nearly faint, when labouring under this disease, upon being merely put in an upright position; yet after a free purging, and other evacuations, they have been able to get out of bed, and walk the floor. Now, were these remedies directly weakening, the contrary of this should have happened.

254. 2d. Attention should be paid to the time they are administered—they should not be given, (unless it would be the loss of precious time to procrastinate,) so as to interfere with the night's rest of the patient; nor should they be used, so that they shall interfere with the "sweating period of fever;" nor without previous preparation by bleeding, in the more concentrated form of the disease.

255. 3d. They should not be given in the decline of fevers, where the patient is rapidly convalescing, lest they produce a relapse—but this is not intended to prevent proper attention to the bowels at this time; for costiveness might be as injurious as purging. Nor must we use them when the patient is much exhausted by colliquative diarrhœa; nor near the decline of a febrile paroxysm.

256. 4th. The operation should be so managed, that the patient need not unnecessarily expend his strength in complying with its demands—he should, therefore, never be permitted to get out of bed for this purpose, when he is so weak as to incur the risk of fainting, or of even being much exhausted. A bed pan should always be used; and although it may at first be a little awkward to the patient, a little practice would reconcile him to it. (See p. 44.)

257. 5th. The patient should be so protected by clothing, when obeying these calls in cool or cold weather, that he may run no risk of taking cold, or provoking chill—on this account also, we should guard against his getting out of bed, when it is practicable to confine him—he should have his stockings drawn on, and a pair of warm slippers ready for him to step into—and he should also be carefully covered with a blanket, during the time he is sitting upon the pan.

E. *Of Blisters.*

258. One of the most common resources in fevers of every description, is blistering; nor is any remedy more abused; because no one is so empirically prescribed. The employment of blisters, in the cure of fevers, must be governed by strict, and decided laws, or very certain injury will ensue. Therefore, in using them, reference must be had, 1st, to the period of the disease, or rather to the state of the arterial system; 2d, to the part to which they are applied; 3d, to the duration of their application; 4th, to the peculiarities of the patient, as regards the more remote effects of this remedy.

a. Of the Period of the Disease, or State of the Arterial System.

259. The discrepant accounts that we meet with in authors, of the febrifuge effects of the blisters, have arisen, we are disposed to believe, from the little regard paid to the state of the system by those who look upon such application as mischievous, at the time of their application; while they are recommended in terms of the strongest confidence by others, who have been more attentive to this great practical distinction. It is, therefore, justly inferable, that both parties were right as regarded effects; but only one was right as regarded the usefulness of blisters; as only one was directed by principles, in their use.

260. It is now well ascertained, that blisters have as decided, and as well characterized a period for application, as blood-letting, cathartics, or emetics; and when used at improper times, they will, like either of the remedies just named, do mischief. It is therefore important, that the pulse be in a proper condition; that is, of very moderate force, at the time of their application; for if it be not in a reduced state, blisters will, like wine and other stimuli, increase the state of arterial action. The blistering point therefore always means, when the arterial force is rather below par, as it is termed. Or in other words, where the artery can be easily compressed, or is soft. When employed in this state of the system, we are very sure they will do no mischief; but, on the contrary, we have every reason to anticipate a favourable result, if the case has been a fair one for their application; for it must be recollected, that blistering will not relieve every state of disease, that may be attended by a soft or yielding pulse.

b. Of the Part to which they are Applied.

261. It is a matter of some moment to select the proper seat for the blister or blisters. Therefore, as a general rule, we may say, that in such fevers as are not marked by local affections, as in pleurisy, inflammation of the liver, or other partial inflammations, that the extremities are the best locations for them. On the calves of the legs, when the circulation in these parts is not too languid, as may be determined by their coldness and insensibility; and on the inside of the thighs, when this is the case. The application to the arms may be regulated, by the same state of the parts; to the forearm, when its sensibility is sufficient for the purpose; and above the elbow, when it is not.

262. It will not be necessary to extend the subject here, as we have already adverted to it, at page 45; and especially as we

shall in each separate disease, point out the part to which they shall be applied, when these remedies are indicated.

263. In remittent and intermittent fevers, blisters are almost always applied to the extremities; and are indicated, whenever it is necessary to make a strong impression upon the system, for the purpose of procuring a more decided remission, or a more distinct intermission, after the force of the pulse has been abated, by antecedent remedies; or is already so, by the type of the fever itself.

c. Of the Duration of their Application.

264. In general, blisters are permitted to remain on twelve hours. If they have not produced their effect in that time, an hour or two more should be allowed them. But if the inquietude of the patient, or other signs, give evidence that they have drawn at an earlier period, they may be examined sooner, and dressed, if they have performed their office. Indeed, it is found in most instances, that it is only necessary to excite the vesicating inflammation; and this takes place much earlier than is commonly imagined; and especially, with delicate skins, as in most females, and in children. When this action is excited, be this after a longer or shorter period, the blister should be removed, and the part covered with a plaster of ung. Basil. flav., which will be soon followed by satisfactory vesication.

d. Of the Peculiarities of the Patient as regards their remote effect.

265. We have seen several instances of adults who could not bear the irritation of a blister, without the most exquisite pain, as well as the most manifest aggravation of existing symptoms. In such cases, we must yield to the idiosyncrasy, by removing these applications; for no possible good can result from a continuance. Others are so liable to severe stranguary upon every occasion of their application, that we should not insist upon their employment, but when compelled by the severest necessity. But this will rarely happen if the plan just suggested be followed.

F. Tonics.

266. There is no dread in fear so universal as that of weakness; nor is there a circumstance connected with disease, so sedulously attempted to be guarded against; nor is there one that has been so uniformly mischievous. Under the influence of this apprehension, proper remedies are withheld, and their places sup-

plied by such as are injurious, because the patient is supposed to be "too weak" to bear the appropriate ones; and consequently, that he absolutely requires the others. Hence the too early and mischievous, or perhaps fatal use, of improper diet and drinks, and the injudicious administration of tonics. We are of opinion, that in our climate, this class of medicines should be exhibited with great caution, as they have, in very many instances, contributed from their ill-timed use, to protract disease, created others, or have destroyed the patient. To the too early use of the bark, one of the best known and most celebrated tonics we have, we may but too often attribute the visceral obstructions which follow fever; and from its too early employment, intermittents have often been rendered more intractable, or have been converted into other more obstinate or dangerous diseases. Let me therefore caution against all unnecessary fears for the strength of the patient; and the too early use of tonics.

267. Against the too early administration of bark, we can hardly recommend too much caution; nor do we know, in adequate terms, how to warn against a popular delusion that has been the death of thousands. We here allude to certain symptoms common to most fevers, (when a little protracted, or when in their early stage, bleeding and purging, have either been altogether neglected, or but inadequately performed,) such as a dry, brown tongue; flushed face; quick pulse; red and scanty urine; dark offensive stools; dry skin; black lips; high delirium; drowsiness or stupor; trembling or unsteady action of the arms when about to be used, &c. These with many practitioners, are looked upon as signs of typhus; and for the relief of which, bark, wine, nay, the whole list of stimulants, are put into immediate and fatal requisition. Under such circumstances, with even a pretty decided remission, neither the bark nor any other stimulant is proper. When we treat of typhus, we shall have occasion to advert to this bad and dangerous practice.*

268. Of tonics, there is a great variety, some decidedly preferable to others; but the choice of them in each individual case where indicated, cannot be pointed out here. We shall, therefore, as we proceed in the history and cure of diseases, direct the substances of this class the most proper to be employed, in the individual case that may require them.

269. Having thus spoken of fever, and its cure in general, we shall proceed to consider fevers in particular; and first of

* See Chapter on Continued Fever and Typhus.

SECT. I.—INTERMITTENT FEVER.

270. An intermittent is that state of fever which consists of distinct paroxysms; with a state of apyrexia, or intervals which are perfectly free from fever. This fever receives a name from the different periods at which its paroxysms or its febrile states return. As, *quotidian*, if the renewal of the paroxysm be every day; a *tertian*, if every other day; a *quartan*, if every fourth day, or after the lapse of seventy-two hours, &c. &c.

271. This fever is supposed for the most part to arise from marsh miasma,* and is most frequent in the spring, then termed vernal, and in the fall, then called autumnal, intermittents. The latter is the more common and the severer, of the two.

272. They commence by a chill of greater or less severity, which lasts a longer or shorter time, according to circumstances. The chill is followed by heat of more or less intensity; and is occasioned by what is called, the “reaction of the system;” this reaction, or hot stage, terminates after a certain duration, by sweat—and when this last symptom subsides, the patient is left apparently free from disease, until the period of twenty-four hours from the commencement of the previous chill comes round; and then the attack is renewed, if it be of the quotidian type. In this form, the interval is short; sometimes not exceeding four hours. In the other forms, the intervals are proportionably longer.

273. The paroxysm of an intermittent is divided, therefore, into three stages; 1st, the cold; 2d, the hot; 3d, the sweating stages.

274. Before the first stage takes place, the patient for the most part feels languid and weak; is indisposed to motion; is prone to stretch and yawn, and generally has a complete aversion from food. The whole body becomes pale, and evidently diminished in bulk, especially the extremities; for rings will oftentimes fall from the fingers. Sometimes the cold sensation is intense, and the patient will shake severely; at other times, the coldness is more moderate, and some trifling trembling is all that is experienced.

275. After this sense of coldness has been endured for some time, its intensity begins to abate gradually, and is eventually

* Of this agent, Dr. Johnson, (Influence of Tropical Climates, &c.) very properly observes, “the term *marsh*, is not so proper as vegeto-animal effluvium or miasma; since experience and observation have proved, that these febrile exhalations arise from the summits of mountains as well as from the surface of swamps. The mountains of Ceylon, covered with woods and jungle, and the vast ghauts themselves, give origin to miasmata, that occasion precisely the same fever as we witness on the marshy plains of Bengal.”

succeeded by a glow that spreads itself successively over the whole body; and after a small interval, is converted into a heat of greater or less intensity; the face and other parts of the body redden; the skin becomes dry; the thirst intense; the head-ache, anxiety, and restlessness excessive; the tongue is furred; the pulse frequent, and for the most part hard and full. This stage is sometimes attended with stupor, delirium, convulsions,* coma, or apoplexy.

276. After the hot stage has continued its period, a moisture is discoverable upon the forehead, which gradually spreads itself over the whole surface of the body, and eventually is converted into a sweat—when this takes place, there is almost always an abatement of the most distressing symptoms; and after a while, most of the functions are restored to their natural state, and little inconvenience is experienced, except debility. In this stage it is well to remark, that the urine deposits a sediment; whereas in the former stage, it is almost always colourless. The entire series of symptoms just enumerated, is again and again repeated; and the interval between each, depends upon the specific type of the intermittent.

277. The chance of recovery is in proportion to the mildness of the symptoms; the shortness of the paroxysms; and the freedom from complaint in the intervals. Agues rarely destroy by true inflammatory determinations to the head or the chest. When they are fatal, it is for the most part by inducing disease in other parts of the body, as in the liver or spleen; or by a dropical affection of the abdomen. They are more fatal in hot, than in cold climates.

278. In the cure of intermittents there are three principal objects to be attempted; 1st, to shorten the fit; 2d, to interrupt the return of it; 3d, to prevent the recurrence of the disease, after it has ceased a certain time.

279. To fulfil the first object, the application of warm things to the whole body; but to the feet, legs, and pit of the stomach, in particular, is of primary consequence—this may be aided by draughts of warm baum tea, lemonade, or common tea. A jug of warm water to the pit of the stomach is not only very grateful, but is very efficient in shortening the cold fit. Dr. Trotter found thirty drops of laudanum of great use in shortening the

* We have lately attended a young gentleman of twelve years of age, in whom the cold stage of an intermittent was ushered in by a violent convulsion, which lasted some minutes—it was followed by a stupor of some hours, which however yielded to a bleeding from the arm, and a leeching from the temples, together with pretty active purging. The paroxysms were suspended by Fowler's solution—there was no repetition of the convulsion—this young gentleman was habitually liable to head-ache from an early period of his life.

cold stage of intermittents—it was given as soon as the patient could discover any sign of its approach; and if in fifteen minutes after its exhibition, a sensation of warmth was not felt, the dose was repeated. This plan was pursued for several periods consecutively at the time of expected attack; this being regulated by the type of the ague—if a quotidian, every day; if a tertian, every other day, and so on. This method of arresting the paroxysm of an intermittent, is used by several respectable practitioners of our city, and with which they feel well satisfied. It must however be supposed, that where success attends this practice, that the disease is of a mild character, and without much evidence of cerebral determination. In agues of long standing, or in enfeebled constitutions, laudanum would be much more likely to succeed, than in intermittents of an opposite character—indeed we are of opinion that it should never be employed without sufficient depletion by blood-letting or purging having been previously employed.

280. After the hot stage commences, we should endeavour to abridge its duration as much as possible—for this purpose the warm applications must be removed—the bed-clothing diminished—cool air admitted—cool or cold drinks administered—and should much head-ache be present, the pulse active and firm, much relief will be experienced by the loss of a few ounces of blood. In prescribing blood-letting in ague, we do not offer it as a remedy that will of itself cure the disease; but we can from very considerable experience recommend it as one, that affords almost immediate relief in most cases; and in all, where its use is justified by the pulse, it shortens the hot, and hastens the sweating stage; it moreover prepares the system in a very certain manner, for the exhibition of tonics. The importance of the last effect, is of much moment; but we fear it is not sufficiently appreciated—had this remedy been more frequently resorted to, we think that the duration of agues and their melancholy suite, would have been much more rare.

281. Opium during the *hot stage* is highly extolled, and boldly recommended by several high authorities; especially Dr. Lind. In this particular district of country we are of opinion, it should be given with much caution, especially when bleeding, purging, and other depleting remedies, have not preceded its use. We have seen good effects from this remedy after a sufficient bleeding, and would never hesitate to exhibit it, where this evacuation had diminished the force of the pulse; and where there was no marked determination to the head. In the warmer parts of our country, we need not perhaps be so cautious—as there, the disposition to inflammatory diathesis is less; and opium can be given both earlier, and with greater freedom. These districts

resemble more the climates in which Dr. Lind found opium so useful.

282. If then the pulse be moderately soft, either from the disease being unattended by much inflammatory action; or from previous depletion, a grain of opium with a quarter of a grain of the tartrate of antimony, may be given at the commencement of the hot fit; and if it act favourably, it will procure a free perspiration over the whole body—but if instead of this, we find the hot stage protracted; or the symptoms aggravated, it should not be again given, until the activity of the blood-vessels is more effectually subdued.

283. It may not be amiss to say, that the epidemic character of intermittents should always be consulted, when we propose to use opium in any shape; for it is one of those remedies which has a very decided agency upon the nervous system, and when exhibited in any acute disease, without immediate benefit, it rarely fails to do harm—therefore, the influence of the epidemic upon the force, and vigour of the pulse, must always be taken into consideration. And as a general rule we may safely declare, that the usefulness of opium in arresting the paroxysms of intermittents, will be almost in proportion to the reduction of the pulse.

284. Should pain in the side, or any other local affection accompany this disease, much relief will be found from cupping, or blistering; and should cough attend, fifteen or twenty drops of laudanum at bed-time will be found very useful.*

285. When sweat breaks out, it should be gently encouraged by mild warm drinks; but it is never necessary to force a profuse sweat.

286. *Secondly, to prevent the return of the fit.* This is a most important object, and is attempted in two ways; first by the exhibition of some remedy, which shall by its immediate action, prevent the febrile one taking place. Very many articles have been proposed to fulfil this intention; but it would be useless to repeat them. They may now be considered as confined

* Intermittents, within the last few years, have been more extensively epidemic than formerly; and each, seems to be marked by its own peculiarities. Sometimes it is accompanied by pleuretic, or pneumonic symptoms; and these almost constantly oblige us to vary the treatment; for the local affections, are pretty sure to interrupt the regular, and common routine of treatment. Thus, if pleuretic symptoms show themselves, we are necessitated to bleed from the arm, or to cup, leech, or blister the affected side; before bark, or other tonics can be given. If cough accompany, it also interferes with the use of tonics, especially bark; unless the cough be purely paroxysmal, like the chill itself; as happened in very many of the intermittents of the fall of 1828. In these cases the quinine; or Wetherill's extract of bark was as certain to stop the cough, as it was to interrupt the febrile paroxysm itself.

to emetics, and opium. 1st, if an emetic be exhibited about an hour before the expected chill, it will sometimes prevent its occurrence—when then, there is no peculiarity in the constitution of the patient, that would prevent the employment of the emetic; as when there is no great determination to the head, as is evidenced by considerable head-ache, and red eyes, this remedy may be used with a prospect of success, especially if much nausea, and bilious throwing up, attend the disease.* And should it fail in this intention, it will be at least useful as an evacuant. We could therefore recommend its employment in the commencement of the disease, if its form be a very mild one, but not otherwise; for if the chill be of long duration, and the reaction or the hot stage violent, an emetic should not be used; particularly if head-ache, or delirium attend; or if a complete solution of the fever does not take place by the hot stage terminating in a general, and sufficiently copious perspiration. 2d, opium, when given in a proper quantity, and under proper circumstances, is sometimes successful in preventing the accession of an intermittent; but of this we have already spoken. (Par. 279.)

287. The second mode, is by the use of such remedies as make an impression, during the interval. These are classed under the general head of tonics. The most celebrated of these, is the Peruvian bark. This medicine is given in a great variety of forms, and in very different doses; but it is now well ascertained, that there is too much fancy exercised in varying the form; and very little or no advantage in excessive doses. When given in drachm doses, it has been more successful, than when extended to two, three, or four.

288. We mention the bark, and its dose, because some prefer it in substance, to the sulphate of quinine, which has almost altogether superceded it. We do not, however, cherish this predilection for the bark in substance—on the contrary, we could

* It is commonly supposed, if sickness or a disposition to vomit attend the course of the paroxysm, that it is caused by bile, or some other crude substance in the stomach; and that this, clearly indicates the necessity of an emetic; but as this may lead to great error in practice, it is well to observe, that mere nausea, even with a discharge of some fluid from the stomach, does not prove the propriety of an emetic; but on the contrary, it may be, and is very often injurious. If what is discharged from the stomach be really bile; that is, a pure bitter, yellow substance, a few grains of ipecacuhana may be useful. But if the substance be thin, watery, and nearly tasteless, it will be injurious. We would therefore lay it down as a general rule, that the antimonial emetic is rarely as safe, even where there is strong evidences of bile, as the ipecacuhana in fevers of high action, or of strong paroxysms. The reason of this is at once obvious, (if the most modern, and approved pathology of fevers be admitted, or if any reliance can be placed upon experience,) namely, that they are very often caused by an irritation or inflammation, of the mucous membrane of the stomach.

wish it were entirely abandoned, as the quinine, (*cæteris paribus*,) is equally certain, to say the least; and is, unquestionably, much more acceptable to the palate, and to the stomach. One grain of the quinine is equal to one drachm of the bark in substance. It is best administered in solution; and may be prepared as follows:—Sixteen grains of the quinine, four drops of sulphuric acid; two drachms of powdered gum Arabic; and three drachms of sugar, are to be dissolved in two ounces of water—of this, a tea-spoonful is to be given every hour, while free from fever.* We have been much in the habit of late of employing Wetherill's extract of bark. This preparation contains the quinine in the state of a super-sulphate, combined with the whole of the extractive matter of the cinchona. It is more certain in arresting the paroxysms than the sulphate of quinine, if our observations have not grossly deceived us; and the disposition to the recurrence of them, seems to be much lessened.

289. It is usually prescribed in doses of one grain in the form of a pill; one is given every hour, while free from fever; for, like the quinine, this is the time for its exhibition.

290. After suitable evacuations, by purgatives, and bleeding, (or an emetic if it has been thought adviseable,) and where there is distinct, and decided intermissions, we should commence with the bark or quinine, as soon as the paroxysm has completely subsided; or in other words, when there is no longer any fever remaining. It is too common to order the bark, as soon as the sweating declines; and mischief many times has resulted from obeying it; for very often there is still remaining a vestige of fever, even after the perspiration has gone off. The pulse should

* It will be perceived that, a drachm of the solution, or one grain of the quinine itself is intended to be given at a dose by this formula; as a tea-spoon is supposed to hold one drachm. In the *Annali Universali di Medicina*, for November and December, 1828, Dr. Speranza gives an account of a successful mode of treating tertian fever, by the endermic method of applying the sulphate of quinine. In fifteen cases, the fever had appeared some days before he prescribed for them. With the exception of two, there was no very manifest local irritation; and in these the symptoms were gastric. Without giving purgative medicines to any of them, he had a blister applied immediately, and in most of the instances on the day of the febrile paroxysm; the sulphate of quinia was put on at the end of the fit, or the beginning of the apyrexia. The arm was selected for the application of the blister, as the most convenient for dressing. Concentrated vinegar was first rubbed strongly on the part to hasten the production of a vesicle by the blister. After removing the epidermis, eight or ten grains of the sulphate mixed with a small portion of ointment, was placed upon it. The wound was dressed on the second day, and every thing that remained upon its surface was removed. From appearances, one-half of the sulphate was absorbed. In most cases the fever did not return even after the first application; nor was it necessary to repeat it. Not only primitive tertians were treated in this manner, but also those that were at first continued. No case of relapse was known. But in some cases, the inflammation of the arm required topical remedies.

therefore be examined; and if it be found still active, the use of the bark should be suspended until this subside. A want of attention to this circumstance, has frequently defeated the best powers of this medicine. But when the system is in a proper condition to profit by its exhibition, we should give a drachm, every hour in milk, or thin molasses; or a grain of quinine, until within an hour of the time of the expected return of the fit, if it be a quotidian; but if a tertian, or quartan, it may be given every two hours—but this must be done with persevering fidelity during the day and night. We object to excessive doses being taken immediately before the returning fit; we have never seen it decidedly useful in any one instance; and we believe we have seen it unequivocally mischievous, many times.

291. There is a great variety of substances purporting to be substitutes for the bark; but as far as our experience, or information goes, there are none of equal value. The one of the vegetable class that approaches nearest to it, in our estimation, is the cascarilla bark, (*cortex eleutheria*), treated pretty much after the same manner as the bark itself; or what perhaps is a more eligible form for this drug, is that of a decoction. In some cases, as in those which may be accompanied by cough, or purulent expectoration from the lungs, it has a decided advantage over bark in any form.

292. Neither the bark nor quinine can be used without injury in such intermittents as are accompanied by cough; (see note to par. 284) or any congestion of the lungs; nor has it ever been useful, when this disease has been complicated with extensive visceral obstructions.

293. Both the bark, and the quinine, run off by stool sometimes, where the exhibition of either would otherwise be most proper; to prevent this, eight or ten drops of laudanum should be occasionally added to the dose—or the patient may drink now and then a wine-glassful of tea made from the ground allspice—this to be useful must be strong—at other times the bark produces obstinate costiveness—to obviate this, the patient should take a few pills made of rhubarb and soap, or aloes and soap, at bed-time.*

* The following pills answer this purpose admirably well; and when it becomes necessary to persevere in any laxative, to overcome costiveness, for a long time, they have the advantage over every other that we are acquainted with:—

R. Gum. aloes suc.	-	3j.	Take of Socotorine aloes	1 drachm.
Pulv. rhæi	-	3ij.	Powdered rhubarb	2 drachms.
Ol. caryoph.	-	gut. vj.	Oil of cloves	- 6 drops.
Sapo venet.	-	gr. viij.	Castile soap	- 8 grains.
Syr. rhæi	-	q. s.	Syrup of rhubarb	sufficient.
M. f. pil. lx.			Make 60 pills.	

One, two, or three, of these may be taken at bed-time when necessary, as the constitutional condition of the bowels may require either a small, or large dose.

294. There is another remedy which is much, and justly extolled, for the cure of intermittents; namely, arsenic—as far as our experience enables us to institute a comparison between it and the bark, we should say, it is fully as certain, and without some of its inconveniences. The only objection that we believe can be urged against it, is, that it is a medicine of most deadly power when improperly used. But when properly exhibited, it is as safe as opium, or any other medicine in daily use. We have never seen the least injury result from it—it sometimes sickens the stomach, and occasionally, even to vomiting—but of what medicine of any power may not the same be said?*

295. The arsenical solution has a decided advantage over any preparation of bark, when children are the subjects for its exhibition—to them it can be administered with the fullest effect, without their being aware they have taken any thing. It may be given when the system cannot receive the bark, or even when the pulse is too full to bear its use.† It must be given in doses of six or eight drops every three, four, or six hours, to adults. Should this quantity sicken too much, or be rejected, smaller doses must be tried; and this will very rarely fail to sit well. To children from one to two years old, one drop or a drop and a half may be given every four or six hours—to those of two or six, two drops; from six to twelve, three drops; and from twelve to adult age, four drops may be used. Should it prove unpleasant to the stomach, let it be given with a drop or two of the essence of peppermint and water, which will almost always correct this tendency to sickness. The only obvious effect we have witnessed from this drug beside sickness, is a swelling of the eyelids, especially in the morning; but this soon goes off, if the medicine be intermitted for two or three days; nor is it of any consequence if it continue a short time; for it appears only as an evidence that, the medicine has had a constitutional effect. We have never known it but once to affect the bowels, and then only very temporarily. After it has been used for a few days, and has not affected the stomach, the dose if necessary, can be increased very safely two or three drops for a grown person, and proportionably for children.

* When we have witnessed the most decided good effects from this medicine, it has always been in recent, or at least, not in very long-standing cases—and we think it more successful in young, than in old subjects.

† The arsenic, like every other tonic or stimulant, employed for the cure of fever, must have the system prepared for its reception; but we think it can be given earlier, and with less depletion, than the bark. Nor is it a matter of any consequence, so far as we have observed, if the fever be not absolutely subdued at the time of its commencement. Indeed, some are of opinion, that this medicine can be given during the whole march of the disease. As regards our own experience, we confess it to be at variance with this declaration.

296. The third great object in the treatment of intermittents, is to prevent a relapse after the fits have ceased a certain time. There is no disease to which the human body is obnoxious, that is so easily provoked to return, or so difficult to prevent from reappearing, as agues. It therefore becomes a matter of great consideration with the patient to know how he shall be protected against its renewal. The seventh, ninth, and thirteenth days, appear to be the most frequent periods of return; but agreeably to our own observation, the thirteenth is the most common. Therefore, to prevent this, the patient should be particularly guarded against exposure, on the days designated above—he should two days before each of these periods take a few doses of his medicine; either the bark, quinine, or arsenic, whichever he may have employed—he should avoid all exposure to damp, cold, or heated air—he should preserve his bowels in a soluble state; but they must not be purged; and most carefully avoid fatigue of body, or emotions of mind. But above all, when practicable, he should remove from the place where it originated, and remain from it, until his health be firmly established.

297. As this disease is generally supposed to arise from an excess of bile, purgatives are too often employed during convalescence, with a view to its removal; than which a greater error can hardly be committed. We are certain that we have repeatedly seen relapses produced by the administration of a brisk cathartic, though given with a prophylactic view. We would therefore earnestly caution against this plan of treatment.

298. We have admitted it to be every way proper, to keep the bowels soluble; but they must be purged with great caution, during convalescence. And it may be useful further to suggest, that much care is required, that purging shall not be carried too far, even when there may be a renewal of the paroxysms, especially if the interval has not been very long, or if the returns have been previously pretty frequent. Nor is it a matter of indifference which of the cathartics we employ. Calomel in divided doses, say a grain every hour, until five or six grains are taken, is the best; and should not this operate in two hours after the last portion has been taken, it should be carried through the bowels by a dose of castor oil or magnesia. But even this cautious use of purgative medicines has its rules; and against which it would not be safe to sin. Calomel, as above directed, should be given only during the appearance of unhealthy, bilious discharges; for as soon as the feces assume their natural looks, it should be desisted from. The neutral salts are always improper, under the circumstances just stated.

299. Should the ague be of long standing, and the stomach much affected, and especially with people advanced in life, it becomes very important, that some aromatic should be joined with the remedies just recommended. The Virginia snakeroot in form of a strong tea, where sickness attends, is of great value—but where the stomach is merely feeble, and flatulent, cloves becomes an important addition to the bark. Indeed, in many obstinate cases which we have witnessed, the addition of cloves was found to be essential to the cure. We have oftentimes succeeded when this article has been joined to the bark, in form of an electuary, when every other we had employed, even the quinine, had proved unavailing. We can therefore recommend this mode of exhibiting the bark, with great confidence.*

300. Blisters are very often powerful auxiliaries in the cure of intermittents—but they should not be employed too early—the pulse should have lost considerably of its vigour, before they be had recourse to. In protracted cases, and especially in aged people, they may be used with great advantage, applied to the inner side of the calves of the legs, or above the wrists, on the arms. They should be of as large a size as the place on which they are to be applied will admit of; for it must be recollected, that a large blister gives no more pain while drawing, than a small one. (See par. 114.) They should be applied at a period, that will secure their drawing, at about the time the fit is expected.

301. Should the stomach be much affected, a blister can be applied over its region with much advantage—this should be in size at least eight inches by nine. Should the head particularly suffer, the blister should be applied between the shoulders, and of such dimensions as will pretty nearly occupy the space of half each shoulder blade, both in depth and breadth, up to the nape of the neck.

302. In our account of fevers in general, we have said enough to direct the diet and drinks in these particular fevers. Should our rules on this subject be adhered to, we believe it will be of advantage to the patient, although we differ in some respects on

* The following formula is the one we are in the habit of using:—

R.	Pulv. C. Peruv. opt.	-	℥ij.	Take	Best powdered bark	2 ounces.
	Pulv. caryoph.	-	℥j.		Powdered cloves	1 drachm.
	Syr. commun.	-	q. s.		And as much molasses or any	
	M. f. elect.				other syrup as will make it	
					into a pretty stiff paste.	

Of this, the size of a nutmeg must be taken every two hours, when free from fever.

this subject, from authors of great experience and celebrity; and especially the European writers. We find in most of them a disposition to alter the diet on the days of interval, by permitting an indulgence in more generous food, than we have directed. This may be right in their climate, and in the diseases of them; but in this country, and especially in the middle and north-eastern states, the plan we have laid down we are persuaded is right; and we must insist that it be persevered in, until the paroxysms cease to return, or until such a state of debility supervenes as will call for this change.

303. After the fits have been interrupted for several days, the patient may be permitted to eat of light but nourishing food; and in indulging in this, he should be cautious not to go too far at once. He may now be permitted to eat moderately of oysters, soft boiled eggs, chicken broth, beef tea, or thin chocolate. In a few days more, he may indulge in beef-steak or mutton chop; and these may be accompanied by a tumbler of good ale and water, or porter and water—and after a few days more of exemption, he may return to his usual habits of eating, except upon the days pointed out for his guarding against a relapse.

304. The anxiety to arrest the returns of ague is sometimes so strong, as to lead to the most disastrous means of effecting it. Thus, we have frequently known people in common life, (and occasionally, indeed, people who should have known better,) take for this purpose large quantities of ardent spirits, and this sometimes rendered more stimulating, by the addition of pepper, just before the expected period of a fit, or at its commencement, with the most baneful result. We once knew death to ensue very shortly after this vile potation had been swallowed; and we have witnessed a number of instances of intermittents being converted into continued fevers by the same means. But candour obliges us to confess, we have also known it to succeed sometimes; but not oftener, nor perhaps so often, as by the use of the remedies we have proposed for this end, and from which no mischief can result. We should be glad, could we but induce those who may be affected with this, but too often tedious and obstinate disease, to give to milder, and more rational means, a fair trial, before they proceed to use remedies rarely successful, very often decidedly injurious, and sometimes dangerous.

305. As intermittents for the most part have marsh miasma, for their remote cause, we cannot be surprised that they should be protracted to almost an indefinite period, so long as the patient continues to have these causes operating in him. Accordingly, many are doomed to be victims to these distressing complaints for many consecutive months, notwithstanding all the

"appliances and means, to boot," have been industriously employed. It therefore becomes in many instances a chronic affection, and is perpetuated to "immeasurable length," by the force of habit. Patients so situated, drag on a miserable existence, until some fortunate application breaks the spell, and restores them to tolerable health.

306. It is a desideratum of great magnitude, to find a remedy which shall destroy the morbid associations which give rise to these repeated and long-protracted paroxysms. So far we are not in possession of such a remedy, although we have several which rarely fail. The treatment of agues in the southern states, is different from that of the middle and eastern states; this arises almost exclusively from certain localities, and the influence of climate. In the southern portions of our union, there is much more extensive, as well as much longer application of the causes which produce them; this gives to the disease a force and a fixedness, that is rarely known, in other parts of the United States.

307. From constant exposure to the remote causes, the patient has but small chance of a speedy *cure*; accordingly, he is rarely benefited until frost has destroyed the effluvia that gave rise to the complaint. By the time spring returns, he is but barely relieved from the effects of his summer disease; and before his constitution has recovered from the previous shock, he is again visited by his ague. Weakened by former indispositions, the noxious causes continue to operate on him with as much certainty, if not with equal force, as before; while the remedies, which had formerly been employed with success, have now lost in great measure their power, and the disease can no longer be held in check; consequently he is subject to it, the greater part of the year—visceral obstructions form; and these are succeeded by dropsy—he crawls a living spectre, until he is relieved by the kind stroke of death.

308. This is but too frequently the melancholy progress and termination of intermittents in certain districts of our country; to arrest them early, and permanently to keep them at bay, is more to be coveted than expected; at least so long as the patient remain on the spot from whence the cause proceeds. To remove him then is a matter of primary importance when practicable; and where not, we are of opinion that much of the obstinacy of the disease might be subdued, if proper and efficient means be employed in the commencement of the attack. By efficient means we wish to be understood, the proper exhibition of cathartics; blood-letting; and occasionally emetics when the liver is goaded to excessive action, &c.

309. By the constant operation of the remote causes in such locations, there will be frequently, an unusual secretion of bile; and although we are by no means of the opinion, that bile is the cause of intermittents, yet we are fully persuaded, nay, certain, that it may aggravate the disease when existing in excess, in the stomach and duodenum. It is therefore far from unusual that the patient discharges large quantities of this fluid during the whole continuance of the disease; which, if it do no other injury, will very frequently prevent the employment of the bark, and other medicine given with the view to interrupt the paroxysms.

310. It has therefore been found an excellent practice in such cases, to repeat the exhibition of emetics; and occasionally during the paroxysm, to have the bowels unloaded by mercurial cathartics. In the southern states, where they are much experienced in this disease, emetics are much resorted to, and it is said with decided advantage; but we fear they err in not using laxatives as freely as they should; and almost entirely withholding the lancet, even where there is unequivocal evidence of a phlogistic diathesis present. The fear of inducing weakness, has led to this reserved use of the lancet; and thus a contingent debility, is compounded for, by the certain induction, of obstructed abdominal viscera.

311. The bark in almost all its forms, as a remedy in intermittents, is admitted by every body to be of extraordinary efficacy; but it is equally true, that it requires a *certain condition* of the system to ensure its success; and that condition, is, an entire freedom from inflammatory action. Therefore, when this state of the system has been overlooked, or not sufficiently attended to, we find intermittents very often converted into remittents; or the force of the disease falls upon the abdominal viscera, to the ultimate destruction of the patient—hence, as we have already observed, it is one of the most common causes of obstructed liver, or spleen, or both.

312. So soon then as there is a determination to these parts, we cease to find much good from the bark—the practitioner is surprised at his want of success; and attributes his failures to the niggardly doses in which he has given the medicines; to remedy which, he doubles, nay, sometimes trebles the quantity, with no better, or perhaps, with even worst effect. The disease now becomes habitual, and will no longer yield to common remedies—an empirical practice is now adopted; which may either succeed, or destroy, as chance may have it.

313. One of the most deplorable circumstances, connected with the history of intermittents, as we have already observed,

is, the liability of the paroxysms to return after they have been suspended for days, weeks, nay, months; and even, when the patient has been removed from the place in which they originated. There is something peculiar in the nature of this form of fever; since it creates a liability to return, which no other form of fever does. A remittent passes off without leaving this disposition behind it, provided, it has not terminated in the intermittent form: when this happens, there is certainly a risk, that the paroxysms of the intermittent may be repeated; but the danger is less than when the fever presented itself originally as an intermittent.

314. To protect the system against this liability, or to destroy the disposition to it, has long been a desideratum, as we observed above; and many substances have been recommended, and various plans proposed for this purpose; but on none of them, so far as we know, can implicit reliance be placed. The plan which has often succeeded with us within the last few years, is, the persevering use of the black pepper corns. Six or eight are to be swallowed, three times a day, about fifteen minutes before each meal, and continued for twenty days; the taking of them should be commenced as soon as the febrile paroxysms have been suspended.

315. We have lately adopted an easier method of exhibiting this substance, and with equal success; which is in pills made of the *piperine*.* A grain of this substance, in a pill, is to be taken as directed for the pepper corns. It can now be procured in this city without difficulty. The dose of the pepper corns, or of the piperine, is for an adult—so far we have only witnessed the efficacy of this remedy, with them; we are yet to learn its powers with children.

316. If the patient, who may be labouring under the protracted form of ague, can be removed from the spot on which the disease originated, he may speedily recover, by the use of the very remedies, which before his removal had altogether failed. But if a change of place be impracticable, we are obliged to combat the complaint in the best manner we can, though it be, at fearful odds.

317. Sometimes by new combinations, the same remedies will prove successful, that had before failed even in large doses; thus bark in combination with certain aromatics will stop an ague, (as we have noticed above,) that would not yield to any quantity administered alone. The prescriptions in the margin, beside

* The piperine is the proximate principle of the black pepper; and bears the same relation to it, as the quinine does to the bark.

the one just mentioned, are of this kind;* and from repeated experience of their efficacy, we can safely, and confidently recommend them. My friend, Dr. Chapman, speaks highly of the blue vitriol, (sulphate of copper,) and opium, in the protracted form of this complaint; and his authority for its usefulness is sufficient to inspire confidence. His formula is noticed below. It is also extolled by several European writers.†

318. When visceral obstructions exist, mercury must be had recourse to. In advising this, we are not to be understood, that it should be exclusively employed; we mean it as a powerful auxiliary to the tonics which must now be substituted for the bark—such as Fowler's solution; sulphate of zinc; sulphate of copper; the decoction of cascarilla, (cortex eleutheria,) &c. for we must suspend the bark, as we are persuaded it is an improper remedy under such circumstances. The best modes of introducing mercury, is either by friction, or by the blue pill—two drachms of the former may be rubbed in, morning and evening, over the region of the liver, spleen, or the inside of the thighs, until two ounces are expended; unless a lesser quantity have given evidence of its constitutional action. Should the mouth not become affected after a lapse of four or five days, another ounce, in drachm quantities, may be rubbed, as before. We believe these quantities will be every way sufficient for the object for which they are prescribed; that is, rather as an alterative, than as a syllagogue. When this plan is inconvenient, or is ob-

* R. Pulv. cort. Peruv. opt.	3vj.	Take Best powdered bark	6 drachms.
Theriaca androm.	3ij.	Venice treacle	3 drachms.
Pulv. crem. tart.	3ij.	Cremor tartar	2 drachms.
Aq. font.	3vj.	Water	6 ounces.
M.		Mix.	

Of this, when practicable, a table-spoonful is to be taken for twelve consecutive hours before the chill is expected. Or,

R. Pulv. cort. Peruv. opt.	3j.	Take Best powdered bark	1 ounce.
Rad. serp. virg.	3ss.	Virginia snake-root	½ ounce.
Cort. aurant.	3ij.	Orange peel	2 drachms.
Pulv. caryoph.	3j.	Powdered cloves	1 drachm.
Carbon. sodæ	3j.	Potash or soda	1 drachm.
M.		Mix.	

This powder is to be put in a clean earthen vessel, with three half pints of boiling water—and simmered gently until it is reduced to a pint—allow it to settle; pour off from the sediment; a wine-glassful every hour, for eight hours, before the chill is expected.

† R. Sulph. cupri.	gr. ij.	Take Sulphate of copper	2 grains.
Gum. opii	gr. iv.	Opium	4 grains.
Conserv. rosar.	q. s.	Conserve of roses,	enough to
M. f. pil. xvj.		make into sixteen pills.	

One every morning, noon, and evening.

jected to, the blue pill, (pil. hydragr.) may be given, in three or four grain doses, morning and evening, until the mouth becomes slightly affected. Should they run off by stool, each dose must be guarded, by a quarter or half a grain of opium.

319. A patient subject to frequent returns of this fitful disease, should be careful about his clothing, especially on sudden changes of the weather from hot to cold, and from dry to wet. To ward off the ill effects of these transitions, he should never be without flannel next his skin, and this should frequently be changed; much depends upon an attention to this point; yet no one perhaps, is more neglected. It is too commonly believed, that there is very little, if any necessity, for changing of the flannel; and it is worn by some, for months together, without this being done; whereas, it should be renewed, when practicable, frequently, (that is, at least twice a week,) especially by those who perspire much.

320. Another precaution should be taken by invalids of this description, (as well as of every other indeed,) which is, never to go out in the morning without having taken food previously. We may with propriety in this place suggest another caution; never to take any liquor with a view of "fortifying the stomach." If such a habit has been indulged in, the sooner it is broken the better; and this may be done both successfully and advantageously, by substituting a gill of strong ginger, or calamus tea, for the usual spirituous potation.

321. The system is very liable to lose its susceptibility to medicine, and stimuli of every kind when long continued; it is therefore of consequence not to persevere too long with any one remedy, and this is especially the case with bark;* therefore when it is not successful in arresting the paroxysms by a fortnight's perseverance, it should be discontinued, and some other remedy tried; or else alter its form, which sometimes proves highly efficacious.

322. But we should, in making our estimate of the power of the bark, be certain that its failure is owing to the system losing its susceptibility to its action; or we may confound it with the phlogistic condition of the body—this is particularly to be attended to in the earlier stages of the disease, and especially with such patients as have it for the first time.

323. In dismissing this subject, we cannot refrain from repeating, how truly essential, a proper and effectual preparation of the system is, for the best effects of the bark. We are per-

* With the bark, we mean to include the quinine and Wetherill's extract, of course; as all have been found to lose their powers in about the same period. And whenever we name bark, its preparations are also to be supposed included, unless otherways expressed.

suaded this has not been attended to with the care its usefulness demands. We again declare it to be our opinion, that most of the failures with the bark, have arisen from this cause. It may not however, be amiss to remark that, much also will depend upon the quality of this drug. For in no one article perhaps of the *materia medica*, are we so likely to be imposed upon, as with this—it is either weakened by improper mixture, or a kind is substituted, that is entirely inert. The same almost, may now be said of the quinine.

324. Within the last few years, the bark in substance, has been almost altogether superceded by the quinine, and Wetherill's extract, which, when pure, are the most valuable acquisitions, presented to us by modern chemistry; and are truly, two of the most certain of the preparations, of this extraordinary medicine. We have already glanced at some of their advantages over the bark in substance, and we shall now add, that their exhibition is more generally certain, than the substance from which they are derived. They are much less offensive to the taste, though intensely bitter; they sit better upon the stomach; and they are not so much disposed to run off by the bowels. Besides, their bulk may be reduced to almost nothing; the grain pills make very little bulk; and the quinine in solution need not exceed a tea-spoonful at a dose.

325. Many are in the habit of exhibiting the quinine into pills; but we are persuaded from repeated experience, that it often fails when given in this form; this arises perhaps from its great insolubility; indeed on this account, much care is required to prepare it in a liquid form. The best formula is recorded at par. 288.

326. The quinine is a costly medicine at first sight; but from all the estimates we can make, it is in the main cheaper than the bark itself. Its high price, and the great demand for it, has unfortunately led to its adulteration. The genuine quinine is a little yellowish.

327. A medicine of great efficacy, if we believe Dr. Jackson, (and perhaps no one is better entitled to credence,) is found in the cob-web; which he assures us "is more effectual in preventing the return of febrile paroxysms, than any other remedy, of which he had knowledge," he further adds, "I think I may venture to say, that it prevents the recurrence of febrile paroxysms more abruptly, and more effectually than the bark or arsenic, or any other remedy employed for that purpose with which I am acquainted; that, like all other remedies of the kind, it is only effectual as applied under a certain condition of habit; but that the condition of susceptibility for cob-web is, at the same time, of more latitude than for any other of the known remedies. The

cob-web was rarely given until the subject was prepared by bleeding, emetic, or purgative, and, given to a subject so prepared, has seldom failed to effect a cure comparatively permanent; relapse or conversion into another form of disease, being upon the whole a rare occurrence, where the disease had been suspended by this remedy. If the cob-web was given in the time of perfect intermission, the return of the paroxysm was prevented; if given under the first symptoms of a commencing paroxysm, the symptoms were suppressed, and the course of paroxysm was so much interrupted, that the disease for the most part, lost its characteristic symptoms. If it was not given until the paroxysm was advanced in progress, the symptoms of irritation, viz. tremors, startings, spasms, and delirium—if such existed in forms of febrile action, were usually reduced in violence, sometimes entirely removed. In this case sleep—calm and refreshing, usually followed the sudden and perfect removal of pain and irritation. Vomiting, spasms, and twisting in the bowels, appearing as modes of febrile irritation, were also usually allayed by it; there was no effect from it where the vomiting or pain were connected with real inflammation, or progress to disorganization.”

328. The doctor further adds, “the cob-web may perhaps be thought to belong to the class of poisons; but it is somewhat singular that I have never been able to discover much difference of effect from a dose of ten grains and from a dose of twenty. The changes induced on the existing state of the system, as the effects of its operation, characterize a powerful stimulant. 1. Where the pulses of the arteries are quick, frequent, irregular and irritated, they become calm, regular and slow. Almost instantaneously after the cob-web has passed into the stomach, the effect is moreover accompanied, for the most part, with perspiration, and a perfect relaxation of the surface. 2. Where the pulses are slow, regular, and nearly natural, they usually become frequent, small, irregular—sometimes intermitting. 3. Where languor and depression characterize the disease, sensations of warmth and comfort are diffused about the stomach, and increased animation is conspicuous in the appearance of the eye and countenance.” Dr. Jackson then specifies the particular spider from which the web should be procured, by saying, “the cob-web here recommended is a product of the black spider, which inhabits cellars, barns, and stables; that which is found upon the hedges in autumn, does not possess the same power, if it be actually of the same nature.”

329. The high encomiums thus bestowed upon this curious substance, should tempt us to fair and unprejudiced trials of it—and as far as our own experience goes, it is much in favour of

this medicine, and is very analogous to that of Dr. Jackson's—we however confess, that our experience is limited.

330. We have refrained from speaking in very decided terms of the practice of bleeding in the cold stage of "intermittents," as proposed by Dr. Mackintosh, (par. 231, note.) We avoided this subject until now, that we might collect the best experience from the practice of others, as we had none of our own to direct us. We have, therefore, come to the conclusion, that sufficient has been ascertained of the effects of this practice, to make us still doubtful of its usefulness. We have, therefore, selected the conclusion of Dr. Stokes' candid paper upon this subject,* that our readers may judge for themselves how far it is worthy of imitation, or may be deserving of rejection. Dr. S. relates a number of cases in which this treatment was apparently successful. He appears, however, to anticipate objections against the plan; which gives rise to the following remarks:—

"From the examination of these cases, I apprehend that an impression will be received certainly against the indiscriminate or even frequent use of bleeding in the cold stage of ague. It may be remarked, that in the great majority, quinine had to be administered before the disease was eradicated; that many of them had an extremely slow and dangerous convalescence; that in several instances the disease, so far from being relieved, appeared exasperated by the practice; that local inflammatory affections occurred several times after the operation; and lastly, that the bleeding appears to leave a tendency to convert intermittent into continued fever. In one case, that of Casey, death from pneumonia and softening of the brain occurred. In none of my cases did any bad effect from sinking of the powers of life follow the practice immediately. But I am informed, that, in the practice of a highly respectable individual, there occurred two cases in which the patients did not recover from the collapse produced by bleeding in the cold stage. These facts should make us very careful how we interfere with nature by means of the lancet, in simple intermittent, when we have so certain, and, as far as I have seen, so infallible a remedy as the sulphate of quinine.

"I do not deny that cases may often occur where venesection may be proper, such as intermittent complicated with severe internal inflammation; but shall only remark, as these cases have not come under my own immediate observation, to offer my opinion upon a purely practical point connected with them would be wholly useless. I shall conclude this paper by inserting extracts from two letters which I have received on the sub-

* Edinburgh Medical and Surgical Journal, for January, 1829.

ject of bleeding in the cold stage of ague. I may mention that I have been informed by my friends, Drs. Townsend and Law of this city, that they have given the practice a trial, and have found it to fail in the majority of cases.

The first letter that I shall quote is from Dr. Kelly of Castle-rea in the west of Ireland.

"I have never in any instance, even where venesection did not prove salutary, known fatal disease of the brain to follow; nor have I ever known death to have taken place in *three hours* after the opening of a vein. I have not time to dwell longer on the subject now, as I have to answer your queries.

"*Query 1st.* What was the general effect on the cold stage?

"*Answ. 1st.* That of cutting short the rigor and rendering the hot stage generally milder.

"*Query 2d.* What was the effect on the hot and sweating stage?

"*Answ. 2d.* I have never tried venesection in the sweating stage, and but once in the hot, when I thought it proved injurious, by inducing great prostration of strength.

"*Query 3d.* What was the effect on the local symptoms, such as cough, pain, &c. &c.?

"*Answ. 3d.* It decidedly relieved pain of the head, which I have oftentimes known to be intolerable in the cold stage. It has relieved oppression, pain of the chest and side; but at the time of bleeding I could not observe any change as to cough; and whenever the patient laboured under cough, immediately after the bleeding, I had recourse to blisters; therefore, cannot say which of the remedies was most useful in relieving it.

"*Query 4th.* What was the effect on the disease generally as to preventing the return of the paroxysm?

"*Answ. 4th.* It had generally the effect of rendering the paroxysm milder, and the disease more manageable by other remedies.

"*Query 5th.* Have you observed new local inflammation to follow the practice?

"*Answ. 5th.* I have observed new local inflammation, generally pulmonic, to occur after bleeding; but I never did imagine them to be the consequence of this practice. I rather attributed them to accidental causes.

"*Query 6th.* Have you treated any cases by blood-letting alone, and if so, with what result?

"*Answ. 6th.* I have never treated any cases by bleeding alone, nor do I think it safe or proper to do so.

"*Query 7th.* Have you observed any alteration in the type of the fever to follow?

"*Answ. 7th.* I have observed alterations frequently to occur in the type after this practice; but this I have observed as frequently in cases where bleeding was not tried, when we trusted merely to other remedies.

"*Query 8th.* Has disease of the brain followed the practice when the intermittent fever was cut short?

"*Answ. 8th.* I never knew disease of the brain to follow when the intermittent had been cut short.

"*Query 9th.* Do you think the practice most applicable in acute or in chronic cases?

"*Answ. 9th.* The practice is more generally and decidedly useful in acute cases, when the constitution has not been broken down. At the same time, I have sometimes seen bleeding useful in chronic cases also.

"*Query 10th.* What is the quantity of blood that you have generally drawn?

"*Answ. 10th.* I never exceeded twelve ounces in any case, but generally did not take more than from six to eight. I never repeated the bleeding a second time in the same case.

"*Query 11th.* Has the disease in any case been exasperated by the practice?

"*Answ. 11th.* The disease has appeared to me in some cases to have been exasperated by the practice."

The following is an extract from a letter for which I am indebted to my friend Mr. Gill, who has seen much intermittent in the fens of Lincolnshire.

"DEAR SIR,

Nottingham Park.

"I feel very sorry that your letter should have anticipated my intention of writing you, as perhaps you may think I had forgotten my promise of so doing. But that was not the case. I was merely waiting to give you more fully the extent of my practice in intermittent fever. Without any more preface I shall answer your queries in order. *1st*, 'How often have you employed the practice?' Thirteen times. *2d*, 'What have you observed as to its effects in the various stages of the paroxysm?' I have bled five times before the usual time of the cold stage had arrived; in some one hour; others half an hour; another a quarter of an hour; and in one two hours before its usual time of appearance. The result was as follows:—In the first case, that of a strong healthy man, the cold stage occurred daily at 2 o'clock P. M. continuing about one hour, and followed regularly by the hot and sweating stages. I should mention he had never before been attacked with the ague, and it was only of three days duration. I bled him largely *pleno rivo*, one hour before the ex-

pected paroxysm, viz. at 1 P. M. At ten minutes past two, however, the shaking fit came on, but certainly not so violent in degree as the previous rigors. He complained less of the headache and sickness; and at a quarter to three this stage of the disease had disappeared, being fully a quarter of an hour of less duration than previously; but I am sorry to add, that the second stage was much more severe and protracted. The fever, headache, and restlessness most certainly were exaggerated, and an hour's longer continuance than before; and this hour seemed to me as if taken from the third or sweating stage, which was much more moderate than usual; but the patient did not feel that relief which he had done before in this stage of the paroxysm. I bled this man the next day at the same hour, and took away an equal quantity of blood. The cold stage came on in the same way as above described, and continued about the same time, but the fever was again more violent and of longer duration, and the sweating stage in the same proportion less. Notwithstanding these unfavourable symptoms, however, I determined the next day to continue the practice; but on my visit found the type of the fever completely altered; in fact, the man had all the usual symptoms of approaching typhus, viz. violent pain in the head, black fur upon the tongue, pulse quick, rather feeble, &c. Of course my treatment was altered; and by a liberal allowance of stimulants and tonics, with saline medicines, this man *fortunately* got well. I have given you fully the particulars of this case, as it is very important in its nature, and might have been of fatal termination.

“In the four other cases where I bled before the approach of the cold stage, I must candidly say, that, if I saw no *direct* ill arise, most certainly I saw no *immediate* good. Time alone can tell whether future ill effects may be averted by this plan of treatment. Again, I have bled five men during the shaking fit. I have observed in four of these that the fit was certainly *cut short*, in the other no perceptible alteration was visible. Bleeding appears to me certainly to have the power of cutting short the cold stage, but then by so doing, it seemed to be the means of lengthening the febrile stage, and in almost all cases I found the sweating stage diminished in a ratio with the length of the febrile state. Besides, in all these five cases the fit made its appearance at the usual time. Some of these patients I have bled once, others twice during the continuance of the cold fit; and I feel morally certain, that if I had again and again bled them, typhoid symptoms would have been induced. If you wish further and more minute particulars of these cases, I shall be most happy to furnish you with them.

“I have practised venesection three times during the febrile

state, where the pain in the head has been intense, I think with good effect. Perhaps, then, you will ask, what is my practical opinion of bleeding in the cold stage of ague? My opinion must certainly be qualified. In the fens of Lincolnshire all fevers partake more or less of the intermittent character; and experience teaches us, that, by what cause soever debility is induced, continued fever will be the effect. Whether this arises from any peculiar state of the atmosphere, or whether it is a natural consequence, I know not, though I am inclined to think the former. From this fact alone, if it can be proved that venesection during the cold stage produces debility, the practice must be exploded; besides, the present practice here is successful in ninety-five cases out of a hundred. By successful I mean not only in curing the present symptoms, but in preventing future ill effects, such as enlargements of the spleen, liver, pectoral complaints, &c. Our practice is the following:—

“On the first appearance of aguish symptoms, an emetic is exhibited, and the bowels are opened. We give the saline mixture in the febrile stage; and, as soon as the sweating stage is terminating, we administer every two hours two grains of the sulphate of quinine, with a liberal allowance of port wine. In the place of these, after the symptoms of intermittent have vanished, the patient is placed under an alterative plan of treatment, viz. pills of submuriate of mercury and bitters, which mode of treatment we find almost effectually to prevent organic diseases.

“Your third query, viz. ‘Has it in many cases cut short the rigor?’ I have already answered. Your 4th is, ‘Have you observed new local inflammation to follow the practice?’ Most certainly I have not. 5th, ‘What has been its effects upon the local symptoms usually present?’ I have generally found all patients during the shaking stage suffering from cough and difficulty of breathing. Bleeding undoubtedly relieves these symptoms as well as the pains experienced in the splenic and hepatic regions; but when we consider the stethoscopic examination discovers no bronchial inflammation immediately after the cold stage has terminated, bleeding can never be recommended on that account.

“To the question, whether the type of the fever was altered? I have already adverted sufficiently. 6th, ‘As to whether diseases of the brain followed?’ I cannot give you any information from experience on that point. Upon the whole, from an impartial review of all the cases in which I have practised bleeding in the cold stage of ague, I should most certainly, as a moral practitioner, give my decided veto to the practice, conceiving it not only to be useless, but dangerous when *indiscriminately*

followed,—I say indiscriminately, for cases might occur where I should think venesection might be necessary,—such as when a person suffering from pulmonary inflammation is attacked with aguish symptoms, &c.

“It is an anomaly which I cannot explain, that in Lincolnshire, where the atmosphere is perpetually moist, and where the mists and exhalations are excessive, cases of pulmonary consumption are very rare indeed. Would you not suppose that in persons predisposed to phthisis, these pulmonary congestions would act as an exciting cause?”*

SECT. II.—REMITTENT FEVER.

331. When a fever consists of repeated paroxysms, (that is, regular exacerbations and declines,) but without a distinct intermission between the paroxysms, it is called a remittent fever. In these cases, it is observed that, though the hot and sweating stages† do not entirely cease before the twenty-four hours have expired from the beginning of the paroxysm, the fever is found to have suffered considerable abatement, or a remission of their violence; but at the return of the quotidian period, the paroxysm is again renewed, and runs the same course as before. This form has therefore no absolute apyrexia, nor is it necessarily preceded in its onset by chill; nor the succeeding exacerbations anticipated by a sense of cold.

332. This fever commences very much like an intermittent; it is preceded by languor and anxiety, listlessness, yawning, and sometimes by alternate fits of heat and cold; pain in the head or back, of greater or less intensity; the heat over the whole body is much augmented;‡ thirst; more or less difficulty of breathing;

* “On the curious fact that in marshy districts, in which ague is frequent, pulmonary consumption is little known, Dr. Wells many years ago collected a great deal of evidence. But of these facts no general principle entitled to the character of an explanation has yet been discovered.—*Transactions of a Society, &c.* vol. iii.”

† A sweating stage does not always belong to this form of fever—we have seen many instances to the contrary of this; and never more frequently, perhaps, than in the fevers of the fall of 1828, when they assumed the remittent form. In almost all these cases, there were two exacerbations in twenty-four hours, at about twelve hours interval. The first, at seven or eight o'clock in the morning, and the other about the same hour in the evening. These conditions would continue for three or four days, before any marked solution of the fever would take place, by sweating. A partial moisture was sometimes, however, observed, upon the decline of the heat of the body.

‡ This is not universally the case; this form of fever has its characters to vary like all others, and by causes altogether inscrutable; and especially when it becomes epidemic. In many instances of this fever in the fall of 1828, the extremities would remain cold; especially the lower, for many hours together; while the other parts of the body, and the head particularly, would be exces-

tongue for the most part white; spirits dejected; and frequently, the skin and eyes have a tinge of yellow; sometimes nausea, and vomiting of bilious matter; pulse frequent, full or small, tense or soft, as the constitution may be affected by the remote causes. After these symptoms have continued for some time, the fever is found to abate considerably; or there is an attempt at perfect solution by partial sweats breaking out, but it is rarely completed; for after a lapse of a few hours, the same routine of symptoms are again observed. After a continuance for some time of alternate remissions and exacerbations, a crisis takes place; or if the disease has been neglected, or improperly treated, it may be converted into a fever of the continued type.

333. There is no inconsiderable difference in the grades of this fever, as constitution, seasons of the year, and climate, may modify the force of the remote causes, &c. In the milder forms of this disease, delirium for the most part is absent; but in the more exalted, it comes on with the first symptoms, and pertinaciously continues through the whole course of the complaint. When this obtains, we may remark an aggravation of all the other symptoms; but these, like the former, suffer a small abatement at the period of remission; but for the most part, the patient profits very little by this partial truce, as the succeeding exacerbations are attended by aggravated symptoms, and sometimes even death ensues. When about to terminate favourably, the contrary to what has just been mentioned takes place; the remission is of longer continuance; and the state of the disease during this reduction is milder; the exacerbation which follows is of less intensity than the former; the sweat, before partial, now becomes general; the delirium less ferocious; the pulse softer and more tranquil; the breathing less oppressive; and eventually a crisis takes place on the tenth or twelfth day, or in hot climates, on the fifth, perhaps.

334. We should never persuade ourselves, that this disease is not, or may not be dangerous; for it sometimes has a fatal termination, even under the best treatment. This, however, more certainly happens, when the remedies have been either injudiciously, or feebly administered; or where they have not been applied, until the patient was already in jeopardy. As a general rule, we may say of it, that, in proportion to the distinctness of the remission; or, in other words, the nearer it approaches to the intermittent form, will be the exemption from danger; while

sively hot. Indeed, the feet and legs were difficult to warm, even by the repeated application of hot things; as heated bricks, or bottles of hot water. When this disposition to become cold prevails, we should never fail to attempt its removal, by the means just named. In some cases we were obliged to have recourse to hot brandy and Cayenne pepper for this purpose.

on the other hand, the shorter and more obscure the remission, the greater will be the danger.

335. Dissections prove that, (at least in almost all the fatal cases which have been noticed,) there are strong local determinations of blood especially to the stomach, head, and liver; and that very often there is an inflammation of these parts. In this country this obtains with almost as much certainty, as within the tropics;* and the disease very frequently runs its course with the same appalling rapidity. We should therefore attend to this disease with a watchful eye, and rejoice, when it does not elude our vigilance. The treatment of it must be both prompt, and decisive; half-way measures will rarely succeed, unless it be in its very mildest form.

336. The treatment of this disease differs very much from that of an intermittent. We rarely dare commence with an emetic; indeed only, when this complaint assumes its very mildest appearance; and when the stomach is evidently irritated by bile.† We mention this, and we wish to be understood as laying some stress upon it, because it is a prevailing error, that “all fevers are accompanied by a copious secretion of bile; therefore, the attempts at cure should be premised by an emetic.” We are persuaded that in several instances within our own observation, an emetic had a decidedly mischievous, if not a fatal tendency. From the force of arterial action, arising from the phlogosed state of the stomach, and the constant tendency to local determinations, bleeding‡ must be had recourse to as early as possible; and the quantity to be drawn must be regulated by the

* We have already acknowledged our obligations to the French pathologists, for the extent, and precision of their remarks upon the dead fever subjects—indeed, they seem to have done almost every thing which is required upon this point; and the truth of their observations, as regard the condition of the stomach; as well as the practical conclusions deduced from them, are now almost as universally, as profitably, admitted. Yet it is due to Dr. Physick to say, that he made like discoveries as early as 1793, when the yellow fever, was epidemic in this city. And we may add, with a view to show how slowly new truths are received, especially when such truths are calculated to destroy old prejudices, that his skill as a physician, as well as that of an anatomist, were called in question, the instant he published his discoveries to the world.

† It now and then happens, that a fever of a remittent form, is, in its onset, accompanied by a vomiting of a bilious matter. The stomach in this case is extremely irritable, and refuses to retain any thing offered it—neither food nor medicine, will lie upon it an instant when this happens; occasionally, advantage is found from emptying this viscus, by the exhibition of ipecacuanha. We rarely venture upon the antimonial preparations; as we are of opinion, that much mischief has followed their operation. This is, perhaps, not of difficult explanation, if the pathology we have adopted of this disease, be correct.

‡ We would wish to be understood here, to mean local bleeding, if necessary, as well as general. The general bleeding, as a common rule, should first be had recourse to.

intensity of the symptoms. The regulations we have already laid down for this remedy must be strictly complied with; especially the one which refers to the change which must be induced on the pulse. Without changing the force or nature of the action of the circulatory system, we do little, perhaps nothing, nay, sometimes mischief. Therefore, where pain in the back and head are severe, we should not stop the flow of blood, until they are relieved, or much mitigated; and this rarely ever will be the case, before the pulse is reduced in a very evident manner. We are to decide upon the quantity to be drawn, entirely by the effects it produces upon the pulse; and not by either weight or measure. In some cases a very few ounces will afford instant relief, while others may require the loss of many. We have frequently seen a large bleeding, immediately followed by a profuse perspiration, much to the relief of the patient, and we were persuaded, at the moment, that a small one would not have produced such an effect.

337. We have several times declared, that dissections have proved that the stomach is in a state of greater or less inflammation, in the greater part of fevers; and this is so readily detected in most instances by pressure made over its region, that we may almost constantly satisfy ourselves of the fact. In making this examination, and it should never be omitted, we must take care not to apply a force, that would of itself create pain, independently of the diseased condition of the stomach, just spoken of. The part most sensitive in general, is the hollow space at the lower extremity of the sternum, or breast bone. If two or three fingers be made to press gently and gradually upon this part, and the patient evince or acknowledge that he experiences pain from the trial, we are assured almost beyond a doubt, that the stomach is labouring under a greater or lesser degree of inflammation. Hence the propriety and oftentimes the absolute necessity, of having recourse to topical bleeding, either by the means of leeches or cups; especially after a bleeding, or bleedings from the arm, have been performed. In a number of instances, we have seen a complete intermission instantly procured by the loss of five or six ounces of blood by leeches from the region of the stomach. Nor do we always require the presence of tenderness from pressure, to induce us to have recourse to leeches. On the contrary, we have known this to be absent; yet the most decided benefit to follow their use. Therefore whenever the fever is obstinate, they should be employed without further loss of time.

338. After having bled the patient, we should attend to the state of the bowels—they should be promptly and freely evacuated; for this purpose, a small dose of calomel, say six grains, should

be given, and this followed in two hours by an ounce of castor oil; which must be repeated, if it does not act sufficiently in two or three hours. We rarely repeat the calomel the same day. Or we may use with much advantage, the Epsom salts and calcined magnesia; or castor oil alone. The salts and magnesia are given in the following proportions.

R. Sulph. magnes.			Take Epsom salts,
Magnes. alb. ust., āā.	-	ʒiij.	Calcined magnesia,
M. et div. in iij.			each, - - - 3 drachms.
			Mix and divide in 3 parts.

One to be taken every hour, mixed in sweetened water or lemonade, until they operate freely.

339. The castor oil should be given in ounce doses, every two or three hours until it operate. It is always best to make the oil very thin, by warming it.

340. Generally it is best to give these medicines in divided doses, and repeat them until a full effect be produced—the intervals at which they shall be given are indicated by the prescription. If a copious perspiration ensue, we may be assured we have lessened the force of the exacerbation; and that the succeeding one will be milder; but we must not be lulled into the belief that it will require no further care—on the contrary, it should be watched with attention, and made to undergo a discipline precisely similar to the one just mentioned; provided, the force of the pulse, head-ache, &c. make it proper to lose more blood—the quantity now to be drawn may be less; but the lancet must not be withheld, if pain attend, and the pulse be still active. The bowels must again be opened by the same means as before; but not to the same extent, unless the evacuations are decidedly bilious, very dark-coloured, and offensive. Should perspiration ensue, and terminate the paroxysm, we may perhaps, gain a complete intermission, and the disease change its type to that of *intermittent*; in this event, it must be treated as already directed for that fever.

341. It is not a matter of indifference, at what part of the paroxysm we abstract blood, either from the arm, or from the skin over the stomach by leeches, or cups. We are of opinion, and think we are not mistaken when we say, mischief has followed the loss of blood, when it has been abstracted near the end of the paroxysm; especially, when the habit of the fever is, to terminate by sweat. We are therefore constantly careful to direct this operation some time before the exacerbation is about to decline.

342. If the paroxysm does not terminate by perspiration; and the patient continue restless, hot, and thirsty, with very little or no abatement of fever, we may be pretty certain that the re-

medies have not diminished the force of the disease; and especially, if delirium should now attend, or become augmented. In this case, we must disregard what has already been done for the patient; and industriously apply ourselves to ward off the threatening mischief—with a view to this, we must carefully consult the pulse, and the attending symptoms, as to the propriety of the further abstraction of blood—should the pulse be still active, the head-ache severe, or other pain continue, we should again tie up the arm, and allow more blood to escape—the quantity must be regulated by existing circumstances, that is, by the reduction of the pulse, or by the alleviation of symptoms. Should the pulse not be so active, (which by the by, will rarely happen at this period of this disease,) as to justify further depletion from the arm; if head-ache, and other evidences of local determination exist, or the tenderness in the epigastric region be undiminished, or augmented, we may take away blood by leeching, or cupping, and may again deplete from the bowels. In this state of things, the latter object is admirably obtained very often by the use of the nitro-antimonial powders.* Or should the disease suffer some mitigation, that is, the abatement of the symptoms just enumerated, we may employ the same powders, with great advantage, or simply the neutral mixture.† It may be well to remark here that, in remittents of very active stages, the utmost advantage is derived from carefully watching the exacerbations, and by never suffering a paroxysm to pass without the abstraction of blood so

* The following is the formula for these powders.

Rx. Nitrate of potass, - - -	℥iss.	Take nitre, - - -	1½ drachm.
Tartrite of antimony, - -	gr. j.	Tartar emetic, - -	1 grain.
Calom. ppt. - - -	gr. iv.	Calomel, - - -	4 grains.
M. div. in viij.		Mix and divide in 8 parts.	

One of these to be given every two hours mixed in a little syrup of any kind. The number to be given must be determined by their effects upon the bowels. If they purge too freely they must be suspended, until further necessity.

† Formula for the neutral mixture.

Rx. Mist. neutral,		Take Carbonate of soda	
Aqua font. aa. - - -	℥iij.	or potass, - - -	2 drachms.
Tart. antim. - - -	gr. j.	Lemon juice, - -	3 ounces.
M. f. sol.		Tartar emetic, - -	1 grain.
		Water, - - -	3 ounces.
		M. and dissolve. a	

A table spoonful to be given every hour or two, during the active state of the fever.

a When making this mixture, care should be taken to first strain the lemon juice, then add it very gradually to the soda or potass until the effervescence ceases. Let the tartar emetic be dissolved in the water before it is mixed with the neutral mixture. Sugar may be added to the taste, if required.

long as the pulse is active, the face much flushed, the skin very hot, and the head-ache severe. Some years ago, in some of our autumnal remittents, so mischievous was the neglect of this rule, that with a number of practitioners it became an aphorism that, "to lose a paroxysm was to lose a patient."

343. As our remittents are very much influenced by causes which we neither see nor have controul over, we shall find their force very different, in different years. In our directions for their treatment, which necessarily must be general, we must constantly be understood to mean, that the remedies are to be adapted to the force with which the disease attacks; the period to which they run, and the particular character they may assume. Thus we find, in some years they are mild, tractable, and of considerable duration; in others they are fierce, rapid, and quickly terminate in health or death. The remedies must therefore be regulated by these modifications.

344. If, after due depletion, we find a disposition to crisis by perspiration, we should endeavour to encourage it by such mild diaphoretics as will create no disturbance in the system, if they fail to procure sweat. For this purpose we may exhibit small doses of tartar emetic, as directed above in the neutral mixture; warm lemonade, or baum tea, with forty or fifty drops of the sweet spirit of nitre; or apply the vapour of vinegar, by means of heated bricks, saturated with this substance. Should the external application fail to produce perspiration in half an hour, it should be desisted from; for further perseverance will not only be unavailing, but even injurious. This indisposition to moisture is almost always owing to too active a state of the pulse, or too high a temperature of the skin—if the first, we must deplete more; if the latter, we must reduce the excess of heat by cool drinks, cool air, and by sponging the body with cool water, or vinegar—but should there be a disposition at this time to chilliness, warm vinegar or warm whiskey may be employed; for notwithstanding this high temperature, the skin when exposed, is sometimes very sensible to the application of any substance below its own heat. We need not, however, always wait for an appearance of moisture on the skin, before we employ diaphoretic remedies; we may have recourse to them when the violence of the disease is so much subdued, as to present a soft and yielding pulse.

345. The nights of fever patients are, for the most part, those of great restlessness and inquietude; and the practitioner is much importuned by the nurse or friends of the patient, for "something to make him sleep." But beware how you yield to this request; for an ill-timed exhibition of opium in certain states of the remittent form of fever, is almost always mischievous; and

we are sorry to add, has been too often, fatal. We have seen without doubt, several instances of heavy stupor, and even apoplexy, produced by even a moderate dose of laudanum.

346. On this account we are extremely reluctant to give it, at almost any period of a remittent; and more especially to a yellow fever patient, whatever may be the degree of sleeplessness, or agitation. Under such circumstances, we have found, almost constantly, that there was either a general or partial accumulation of heat, especially of the head, a dry skin, bowels rather tardy, or very offensive evacuations, to be the cause. Or it has been found owing to a dull but pretty constant pain in the head, attended sometimes by slight delirium; and other times with a slight stupor, alternating with distressing watchfulness. Pulse either too quick or lagging.

347. In these cases, we are certain that opium would be injurious, if not fatal. In such cases, instead of it, we should employ cold applications to the heated parts of the body and extremities, by sponging; to the head by wetted cloths, or a bladder of cold water; a few leeches to the temples; a mild purge, as castor oil; a free ventilation of the room, together with a decided reduction of the bed-clothes. This mode of treatment is almost sure to procure sleep. Or if, as has occasionally happened, especially in our late epidemic remittent, (1828,) the feet and legs be cold, to have them well warmed, by a foot bath, or the application of dry heat.

348. Affusions of cold water are spoken of with high encomiums by writers of great practical eminence in this species of fever—but we hesitate to recommend them in this place, as their usefulness is entirely governed by a particular state of the system, which it is difficult to procure or to seize. It is agreed on all hands, that cold water applied to the body, is an agent of great power; but that it is only useful, where the condition just alluded to, exists; and where all the requisites for its exhibition, can be complied with. But these conditions are so numerous, and so difficult to designate, that few would be tempted to employ this remedy, after having heard them detailed. But independently of these considerations, great inconveniences attach to this remedy in private practice; in hospitals alone it can be used with advantage, for in them every contrivance for its application is at hand, and ready at a moment's warning.

349. Blisters are very often advantageously employed in these fevers; but there are few remedies, in the use of which so much discrimination is required. They should never be used in the early part of the disease; that is, never before the pulse is sufficiently reduced. Should we use them too early, they do harm instead of affording relief—for there is truly a "blistering point."

But when the system is properly prepared, few remedies are of more decided efficacy.

350. Blisters are employed with two views. 1. To relieve pain, by being applied immediately over, or as near as possible to the part pained—thus, when head-ache is severe, or delirium is present, they are most successfully applied to the nape of the neck, and shoulders; if the pain be in the chest, stomach, or side, they should be applied to these parts respectively. 2. They are used with a view of making a counter-impression, or revulsion. When used for this purpose, they are generally fixed upon the inside of the calves of the legs, or above the wrists upon the arms, or upon both. We may here remark upon the use of blisters, that, to be useful, they must be of sufficient size; for we have before observed, that a large blister gives little, or no more pain, than a smaller one; but is much more useful. (See par. 132.)

351. It sometimes happens, that remittents do not require, or will not bear large evacuations, especially by bleeding, even in this portion of our country, but more especially in the south—this is occasioned by several causes; but over neither have we any controul. We have already noticed this diversity, but this will occasion very little embarrassment in practice, as the character of the disease will readily be learnt; 1st, by the state of pulse; 2d, by the greater or less violence of the symptoms; 3d, by the effects of remedies; 4th, by the peculiarities of constitution of the patient; 5th, by the general character of the other prevailing diseases.

1. *By the State of Pulse.*

352. The pulse in fevers is a more certain guide than in almost any other form of disease—it must therefore be strictly attended to, and all its different varieties should if possible be understood. We shall endeavour to convey an idea of the states of the pulse; but are thoroughly sensible of the difficulty which attends the subject—for experience must do much towards its being well comprehended. We shall therefore merely state here the conditions of pulse which require and justify the abstraction of blood in fevers. *a.* Where it is hard and full. *b.* Where it is preternaturally slow or sluggish, with tension and firmness. *c.* Where it is frequent and tense. *d.* Where it is quick and corded. *e.* Where it is oppressed and labouring.* Where either of these

* The hardness of the pulse, is to be ascertained, by the sensation it conveys to the mind when felt by the finger. Hard and soft, are merely relative terms; and are simple ideas. But an inference is instantly drawn, when the finger touches a body; and when the mind is directed to determine its qualities, it

state of pulse obtains, we are justified, (if other symptoms, such as pain, oppression, delirium, &c. be present,) to abstract blood; and repeat it, so long as these marks of disease continue. But on the contrary, we are not warranted to draw blood where the pulses are in an opposite condition to those we have just stated. It, however, frequently happens, that we may safely and advantageously employ local blood-letting, by cups or leeches, when we should not dare to abstract blood from the arm.

concludes, that it is either hard or soft. But the degree of either, is only ascertained, by a comparison with other bodies; or with the same body, under different circumstances; thus heat and a variety of other causes, may affect a body, so as to render it comparatively, harder or softer, when compared with itself. So with the artery; for causes may render it capable of resisting the pressure of the finger, to a greater or lesser degree. To become acquainted with the relative conditions of the pulse, it is very useful to examine carefully and frequently, the degree of pressure the young, and adult artery will bear, in a state of acknowledged health; and when it is altered by disease, to endeavour to detect the difference, by comparing the present, or deranged condition, with the sensation it formerly excited, when it possessed its healthy tone. If it convey the idea of greater firmness, it is to be concluded that it is harder than natural; but if on the contrary, it give the sensation of bearing less pressure, it is to be considered as softer, than the natural standard. You have then presented to you, a hard or a soft pulse. But it may be well to remark, there are even degrees of these two qualities of the pulse, but which can only be learnt by experience. A full pulse conveys the sensation of the vessel being distended, or filled with a fluid, to as great an extent as it will bear: and to such nicety of discrimination does the experienced finger arrive sometimes, that in the full or contracted pulse, it can determine the thickness of the arterial parietes.

The preternaturally *slow* or *sluggish* pulse must be determined by the beats being fewer than the natural standard; and giving the idea of an unwillingness to perform its assigned duty. This pulse is more common with such patients, as have great cerebral determination; amounting even to coma sometimes. The *tension* of the pulse is ascertained, by imagining the artery to be stretched by two contrary powers; and the degree of force that would be required, to make it depart from a straight line; this state of the artery, we believe, is always hard; the mode of determining its firmness, we have just explained; and it may be considered as synonymous with the "hard pulse." The *frequency* of the pulse, is determined by the excess of strokes beyond the natural standard, in a given time, this pulse may be attended by tension; if so, it is always hard. The *quickness* of the pulse is determined by the time it employs in performing its stroke, and has no relation to the period which elapses, between the several strokes; consequently, is not synonymous with the "*frequent pulse*." This pulse may be tense, hard, or corded; for the tense, hard, or corded pulse, may be looked upon as the same. The *oppressed*, or *labouring* pulse; or as it is frequently termed, the "*depressed pulse*," conveys the idea, that the artery is raising a weight in distending itself, (that is, while it is performing its beat,) almost equal to its powers.

In attempting to convey an idea of the different states of pulse, we are fully aware of its extreme difficulty and of the inadequacy of words to effect this: we thought it right however to attempt it—and if we have been able to make an approach towards explaining of them, we shall think we have gained by it.

2. *By the Greater or Less Violence of Symptoms.*

353. It obtains in many instances of remittents, that very few distressing symptoms accompany it—the fever, not excessive, and the remissions strongly marked; head-ache, or other pains, very moderate; and no delirium. In these cases it is not necessary to bleed largely.

3. *By the Effects of Remedies.*

354. This should always be kept in view; for the loss of a few ounces of blood, or other evacuations, will have a much greater effect at one time, than at another, and upon different individuals. We should, therefore, apportion our remedies to their effects.

4. *By the Peculiarities of Constitution.*

355. Almost every individual has peculiarities, as regards remedies—some requiring large, and others, smaller doses, of even the same medicine. We should, therefore, always be attentive to this peculiarity, and act as this will point out. It is highly important to study the habits of patients, that it may be known how they may be effected by particular agents; for many times mischief would ensue without this information, from the exhibition of very common remedies. Some cannot bear the loss of even a very few ounces of blood without fainting; while others can bear their vessels almost drained, without such an effect ensuing. But in deciding how we are to act in the first case, it is important to know, that this circumstance does not always justify withholding the lancet; but in this case, much less blood will suffice, than if this did not obtain. Others cannot be affected by certain remedies, at least in a degree to be any way useful, without much difficulty—thus we have seen some patients take, without effect, three or four times the quantity that would answer for others; while, on the other hand, we have known some, so extremely susceptible to the action of certain articles, that it would really be unsafe to exhibit them in almost any quantity. These deviations should always be kept in view, lest we should attribute to the disease, that which properly belongs, to idiosyncrasy.

5. *The Character of the other Prevailing Diseases.*

356. If it should be at a season of the year when other diseases be rife, we may learn much by attending to their general

character—if this should be inflammatory, the remittents will partake, to a greater or less extent, of this character—on the other hand, should the contrary be their disposition, we must employ less bleeding, or none, and more moderate purging: in a word, a modified treatment will then be required; which we trust can be learned by paying attention to the general doctrine of fever.

357. That occult cause, which determines the character of every epidemic, operates by laws, of which we are entirely ignorant; its power is only made known to us by the peculiarities it imposes upon the prevailing disease. These peculiarities are never to be lost sight of. They are of the greatest practical importance; since, the neglect or observance of them, will render the treatment either successful, or otherwise. And the fact cannot be too early suggested, or too strongly enforced, that there are shades of difference in every disease of an epidemic character, however frequently or seldom, it may renew its visitations. This has been well demonstrated in the various returns of the “yellow fever” in this city; and has been no less evident in the recurrences of the intermittent and remittent fevers, in the neighbourhood of Philadelphia, for the last six, or seven years. The last, that is, the one of 1828, has in several very important particulars, differed from every preceding one; and, consequently, required a difference in the mode of treatment.

358. When the disease was of the remittent form, it was frequently ushered in by a sense of cold, pretty long in duration, rather than by a manifest chill. The reaction was generally excessive, and constantly attended by severe head-ache, and oftentimes with delirium. The hot stage decreased very slowly, and sometimes the period of its remission was marked by a partial sweat. It observed almost constantly the tertian type; and the third day was sure to be marked by an increased severity of the exacerbation. It sometimes required ample depletion; both by general and local means; purging by the milder cathartics; blistering, &c.

359. Should the investigations just recommended lead to the persuasion that the character of the disease is one of but moderate, or feeble excitement, we must be regulated in the use of remedies by this impression. But we should not let ill-grounded fears so pervert our judgment, as to make us plunge ourselves into the opposite extreme. The dread of a low, or typhus state, has too frequently suspended the use of the only remedies which could have prevented it, or saved the patient; and thus, depletion, to a proper extent, has been neglected, or feared, and stimulants made to usurp its place. Against an error of this kind, we cannot guard too carefully; for even typhus, (as it is called,) as we

shall hereafter say, can only be cured by premised bleeding and purging. We should, therefore, never neglect these remedies when indicated in the commencement of a disease, because this disease may eventuate in the condition called typhus. It, however, behoves us to watch carefully the tendency of the fever. If it be disposed to run into one of feeble action, after a few days continuance, we should take care not to push depletion beyond its proper bound; the pulse, and other symptoms, will direct us when to withhold it, if properly studied. But it must be recollected, that, when fever does not require depletion, it does not necessarily require stimulation—that there is a period in such fevers as are disposed to run into a low state, at which we must withhold evacnants, we grant; but we must insist, that it requires much judgment when to exchange them for tonics, or stimulants, should these ever be necessary.

360. There is no term in medical nomenclature, that is so ill-defined, or little understood, as typhus; according to our observations, it is almost constantly made to consist in a set of symptoms that have two opposite conditions of the system for their origin; yet both treated as if they were one and the same. We shall attempt to prove this by and by.

361. During the whole continuation of fever, too much regard cannot be paid to the articles of diet and drink; we have dwelt upon this in our general observations on fever; and a long experience convinces us, that the rules laid down, cannot be dispensed with, without incurring a risk of mischief to the patient.

362. It will be observed, that we have hitherto not prescribed that supposed innocent cordial and beverage, “wine whey,” in any one instance; not even in such cases as are too generally supposed to require it—namely, where the tongue is black or brown, &c., we have done this, from a conviction, that these symptoms do not require such a remedy; and which in itself would do mischief, were it employed, since, these very symptoms are almost sure to be removed, (especially when they appear after the few first days of the disease,) by a contrary plan; and when they show themselves in long-protracted fevers, it is totally inefficient. But more of this by and by.

SECT. III.—CONTINUED FEVER.

363. This form of fever, allows us but little to say in particular; as it is one that rarely appears among us, unmixed with symptoms, that belong to the remittent of this climate. We have of late years paid some attention to this form of fever; because it is recognised by almost all the writers upon this subject, and made by some to be essentially different from the remittent. We

have however, never satisfied ourselves, that there is good grounds for such a distinction; at least so far as it is just to consider similar remote causes.

364. The continued fever runs its course, without intermissions, and with but very slight remissions. Good makes this fever, consist of "one series of increase, and decrease; with a tendency to exacerbation and remission, for the most part appearing twice every twenty-four hours."—Study of Med. Vol. II. p. 116. Amer. edit.* He divides it into three species; 1, inflammatory fever; 2, typhus fever; 3, synochal fever.

365. For the purpose of practice, this division into species is not essential; for the duration and force, of the inflammatory symptoms, are altogether uncertain; for, the continuance, and perhaps existence of this condition of the system, will depend upon the power of the remote cause or causes; constitution of the patient; location; and the mode of treatment. If the inflammatory symptoms are high, we have the first species, or the inflammatory fever; but if they be not high, yet will bear moderate depletion, the synochal fever may be considered as present; and if the reduction of the phlogistic state be still more evident, typhus according to some writers and practitioners, will be formed. So that the three species of Good, may consist only of modifications of his continued fever; and these forms be dependent upon the contingencies above named.

366. Thus it would appear, that the same remote cause or causes, may produce the three species of continued fever of Good, in different individuals; or they may follow each other in the same person, from the same remote, and exciting causes.

367. This form of fever, commences like most other fevers; that is, with languor, or a feeling of weakness; indisposition to motion; yawning and stretching; paleness, or shrinking of the extremities; rarely a well-defined chill; but at first, a sensation is felt down the back, as if cold water were poured upon it, which sometimes extends to the whole body; head-ache; red eyes; disagreeable taste in the mouth; loss of appetite; pain in the back and loins, with a short breathing.

* In what does this definition of continued fever differ from that of our ordinary remittent? in the mere circumstance of the latter being "strikingly exacerbating and remitting." Good, vol. 2d, p. 21. Does this mark any essential difference between the two, except what may be purely accidental, or derived from the previous state of the system? for we have seen remittents, properly so called, have "one series of increase," and with very little tendency to marked exacerbation or remission. Indeed, in a practical point of view, but little is, or can be gained by distinctions, without essential differences. For our curative intentions are derived from, (or always should be,) the state of the circulatory and nervous systems; and not from the period of exacerbation, or the time of remission, or the one being more intense, and the other a little more perfect. The remote causes appear to be the same.

368. These symptoms, after a shorter or longer time, are followed by a glow or heat over the whole body; flushed face; anxious expression of the eye; restlessness; increased head-ache, perhaps delirium; oppression about the precordia; nausea, and sometimes vomiting of pure bilious matter; red eyes; and very dry skin; bowels almost always constipated; deficiency of urine, &c.

369. The pulse, not extremely frequent; rarely amounting to a hundred in the beginning of the disease; but may rise to one hundred and twenty as it progresses; always hard and full, resisting a considerable compressing force.

370. The causes of this fever, are bodily fatigue; great mental exertion; anxiety; long watching; passions and emotions of the mind; cold long applied to the body; checked perspiration; &c. &c.* (marsh miasma?) Some of the British writers consider this fever as contagious; but there is not the slightest ground for this belief; at least in this country. Marsh miasma and excessive heat however, may be looked upon as the most frequent causes in autumn.

371. The exacerbations of this fever are almost always in the evening; in the morning an abatement of the frequency of the pulse; a diminished temperature of the skin, and a partial or general attempt at a solution of the paroxysm by sweat may be observed. But this, when not complete, is of short duration; for the fever becomes again very quickly, and sometimes, greatly augmented.

372. If this fever continue beyond the fifth or sixth day, without a tendency to amendment or crisis, we for the most part find the strength of the patient fail with considerable rapidity; the pulse to increase in frequency; but is weaker, smaller, and perhaps irregular. The mind becomes more certainly unsettled; the tongue may now be dry; or brown, with a tenacious moisture; the heat of the body irregularly diffused; some portions more than ordinarily hot, as the head, chest, abdomen, and back; while the hands and arms; and the legs and feet, are preternaturally cold. Now and then, a cold sweat bedews the whole body; or it stands in detached portions, upon the marble-cold skin.

373. The urine for the most part, is of a very high colour, and scantily secreted; or it may be unusually abundant, of watery transparency, and without a deposition. This fever, as noticed

* These are the common causes assigned for the production of continued fever—we should regard them in general as but the exciting causes. Marsh miasma may, we know, remain dormant in the system for a long time—so long indeed in some instances as to be lost sight of, though it was the veritable remote cause of the disease.

above, may degenerate into what is commonly called typhus; and it may pass off in an intermittent form. From this it appears, that it differs but little in essentials, from the common remittent; and this variation may be looked upon, rather as accidental, than necessary or constant. Location perhaps may have considerable influence in modifying the type of this form of continued fever; as it is found most frequently in marshy and wet situations. It was very frequently met with in the epidemic of the fall of 1828.

374. This fever differs from the ordinary form of the remittent common to our country, principally in, 1st, the exacerbations being less regular; 2d, the remissions more obscure, or less tendency to useful, or critical perspiration; 3d, greater discharges of pure bile; 4th, less equality in the general temperature of the body; 5th, more decided tendency in the extremities, to become cold; 6th, cold colliquative sweats; stronger disposition to delirium; and a dry state of the tongue. But all these variations are merely modifications of force, in the disease.

375. The favourable signs in this fever, are a more equal diffusion of heat; a tendency to a general, warm perspiration; diminished frequency of pulse; less restlessness of body; more clearness, and steadiness of mind; tongue changing its dark, to a light, moist coat; diminished thirst; the free secretion of a urine, that will yield a deposit of a brick-dust colour; and sometimes a diarrhœa.

376. The unfavourable signs are irreclaimably cold extremities; a profuse cold sweat, either general, or partial; increased frequency of the pulse, with an abatement of its strength; great jactitation; muttering low delirium; picking of the bed-clothes; twitching of the nerves; increase of dryness of the tongue, and blackness of the teeth; hiccup; a suppression of urine; and above all, the patient not feeling the necessity, or possessing the ability, to retract the tongue, after it has been thrust beyond the teeth,* for the purpose of examination; involuntary stools; apoplexy; convulsions; death.

377. The mode of treatment of this fever is very analogous to that of the remittent, of which we have already spoken. The nature and extent of the remedies will in great measure depend upon the force, and period of the disease. If in the commencement, while the pulse manifests vigour and activity in the vascular system; and especially, if much head-ache be present, we must resort to bleeding, to an extent that *will insure an*

* We have been very attentive to this symptom for the last few years; and so far, we have not seen a recovery, where it had existed.

abatement of the head-ache, and a decided reduction of the pulse. We cannot determine by figures, the number of ounces that should be taken; the effects above stated, as necessary to take place from the bleeding, should alone be the guide, both as regards the quantity, as well as for the repetition of the operation. If the loss of ten ounces, or even less, produce the changes insisted on, the blood may be stopped; but if several ounces more are required for this end, they must be drawn.

378. If there be less vigour of pulse, or so little as not to justify the drawing of blood from the arm, either from its having been reduced by a previous bleeding, or from any other cause, it may be abstracted by leeches, or cupping; from the head, if this part be acknowledged the seat of pain; or if there be delirium, or stupor, a flushed face, and loud breathing, it should also be done. If there be much heat in the head, cold applications must not be omitted.

379. Should there be pain, or even considerable tenderness upon pressing the region of the stomach, after depleting as above directed; or where there is no great embarrassment in the head, four or five ounces of blood should be drawn from over the pit of the stomach, by the same means.

380. The alimentary canal must now be evacuated, after the same manner as has been directed, at page 81; and should these means produce a tendency to perspiration, it should be encouraged by drinking of warm, weak lemonade, baum tea, or weak common tea. Should these means have been faithfully followed in the beginning, it will rarely be necessary to repeat them. But should the symptoms continue, and the pulse still be full and active, the lancet, and other evacuations must again be resorted to.

381. If the feet become cold, they should not be permitted to remain so a moment longer than proper applications can be made to them. These applications may be warm vinegar and mustard, or heated bricks; jugs of warm water, or the feet placed in a pail of warm water, in which salt, or mustard, is mingled. The first is to be preferred when the system appears rather prostrated; and they should be suffered to remain on, until they produce redness, and pain. The second, where the coldness is temporary, and where the action of the skin is easily excited: and the third, when there is head-ache, delirium, and great restlessness.

382. During the continuance of the fever, the bowels are to be kept free after the first or second day, by the more mild purgatives; such as the castor oil, magnesia and salts; rhubarb and magnesia; Rochelle salts, and the Seidlitz powders. Should the evacuations, however, become very dark-coloured without odour,

or very offensive, with a frequent inclination to use the pan without much passing from the bowels at a time,* small doses of calomel should be given, and continued, until they procure a change in the appearance, odour, and quantity of the feces.†

383. Should the bowels not be speedily or sufficiently obedient to the medicines exhibited, but become painful and tumid, they should be excited to discharge themselves by means of a simple injection.‡ If the stomach become very sick, and throw up *bile*, twenty grains of ipecacuanha should be given in a table-spoonful of lukewarm water; and its operation encouraged by draughts of warm water. But if the stomach be merely sick, or rejects a colourless, or a pea-green fluid, the emetic should not be given; especially, if there be a tendency to dryness of the tongue, or much tenderness at the pit of the stomach.

384. Blisters are highly useful at a certain period of this fever, that is, after the more active and inflammatory stage has passed. At this time, if there be a disposition in the feet and legs to become cold; if the remissions continue to be obscure; if there be no disposition in the skin to furnish a warm, gentle, and general perspiration; a tendency of the tongue to become dark and dry; blisters should be applied to the calves of the legs, and suffered to remain until they irritate the skin in a decided manner. This will be ascertained by the patient complaining of pain; and by the inspection of the parts to which the blisters were applied. But should they neither have drawn, nor have reddened the skin, they should be kept on until either of these changes take place; we say either, for if they have blistered, nothing more can be expected; or if they have well reddened the surface on which they have been applied, vesication will be sure to follow, if the part be dressed with basilicon ointment. (See Art. Basilicon Ointment.)

385. These applications may be repeated if the disease persist in its course; or if the system appears reluctant to produce a

* Great mischief is sometimes done, when this state of bowels exists, by the exhibition of laudanum, or other astringents, with a view to arrest their motions; nothing can be more ill-judged than this. For it is every way certain, that this condition of the bowels arises from putrid bile, or other offensive matters, which have been thrown into the alimentary canal, and which require to be carried off by calomel and other purgatives.

† A grain of calomel should be given every hour, until five or six grains are taken; if these do not operate freely, let an half ounce of castor oil be given; and should this not produce the desired effect in two hours, let it be repeated. Or should the oil be offensive to the stomach, two or three tea-spoonfuls of calcined magnesia may be given. Under the circumstances above described, the purging should be continued until this dark and offensive matter be removed; this will be known by a change of appearance in the evacuations.

‡ For this purpose, one of the best is a pint of warm water, and a table-spoonful of table salt.

crisis, either by the skin, or by the bowels. If a crisis take place by the skin, the transpiration will be general; more or less profuse; the skin will become cooler, but still a little warm; that is, rather above the natural temperature; thirst will diminish; the head will be relieved; delirium, if it had been present, will abate; and the pulse become less frequent, more full, and softer. If by the bowels, the same reduction of the unpleasant symptoms will take place, with the exception of the state of the skin; this will not transmit so much fluid, though it will be inclined to moisture; and the reduction of its heat will not be so rapid.

386. But if neither of these events happen, a pair of blisters to the arms may be of great importance. Or, if the tenderness remain at the pit of the stomach, abstracting three or four ounces of blood by leeches, will sometimes produce the desirable changes above stated, in a very short time.

387. We do not think that Dr. Good has followed the most natural arrangement for his three species of continued fever. The typhus and the synochus should have changed places—at least it would be so in this country. We shall, therefore, follow the latter arrangement.

Synochus Form.

388. The synochus fever does not differ from the one just described, in either its causes, or its general phenomena. The only essential difference that can be detected, is perhaps a lesser degree of inflammation. With this in view, the treatment will be as easily conducted as the one just noticed. It will be proper, however, to bear in mind the following modifications of the practice detailed above.

389. First. That, as there is less inflammatory action in this form of the disease, a smaller quantity of blood will be required to be drawn.

390. Second. That the want of vigour of the arterial system may be such, as to render bleeding from the arm altogether unnecessary, or even improper.

391. Third. Though this may be true in some instances as regards general bleeding, still, it hardly ever occurs, that the topical abstraction of blood is not absolutely necessary—for, where there is head-ache, red eyes, flushed cheeks, a hot skin, and perhaps delirium, blood taken from the temples, by leeches, or cupping, forms an essential part of the treatment.

392. Fourth. If, under such circumstances, there be tenderness at the pit of the stomach, nausea, and vomiting of thin fluids, or glairy mucus, the blood should be abstracted from the tender part, by either leeches, or cups.

393. Fifth. Though the system may permit only a moderate expenditure of blood, yet the bowels will almost constantly require to be free; the extent, however, to which purging must be carried, will very much depend upon the appearances of the evacuations themselves; recollecting, that while the stools are dark, offensive, and bilious, the bowels should be kept constantly open by the milder purgatives,* and the occasional employment of calomel, after the manner already directed.

394. Sixth. That the purging must be withheld, for a time, if the stools are very sparing, watery, and mixed with the *white mucus* of the bowels, or blood; or urged less freely, if bile of a healthy bright yellow could appear.

395. Seventh. Should the skin continue to be dry, and hot; if the pulse be frequent, and even but moderately tense, the neutral mixture, with tartar emetic, should be given every two hours; (see par. 342,) provided the stomach is not nauseated, or too irritable, to bear the tartar emetic. In this case, the neutral mixture alone should be administered. The application of blisters will be regulated by the rules laid down above.

396. In this, as well as in every other form of continued fever, much benefit may be derived from sponging the body with cool, or cold water, whenever the skin is hot; provided there be no moisture upon the surface at the time, or no cough, or other pneumonic symptoms, as has already been directed under the head of "Remittent Fever," page 110.

397. During the whole course of the disease, the diet should be strictly antiphlogistic; and the drinks the same as before recommended. (See par. 214.)

* There is no practical error greater, than to suppose there is a necessity of employing the most active purgatives, in the treatment of fevers. As the bowels are sometimes tardy, and as the relief, when this reluctance is overcome, is both striking and salutary, it has been imagined, that the more certainly, and speedily, this could be effected, the better for the patient; hence the almost universal use of the drastic purgatives, as calomel and jalap; senna; scammony; gamboge, &c. &c. Now, let it be again repeated, that in all fevers there is a constant liability, (if it does not always exist,) of the mucous membrane of the stomach and bowels to become inflamed; and, consequently, that all irritating substances must be highly prejudicial to this condition of this very important surface. This is not a refinement in doctrine; nor an instance of pathological theorizing; it is a constant, and valuable practical fact, and must never be lost sight of. The evidence of the mischievous effects of the drastic purgatives might be constantly observed, were practitioners as attentive as they should be to the phenomena presented by an inflamed, or highly-irritated mucous membrane. For they might see the mucus of the intestines coming away in quantities, with little or no fecal matter; and thus giving evidence, that the mucous membrane was severely irritated; in this case the discharges may be either marked with streaks, or accompanied by a greater or less quantity of blood; or when this coat is inflamed, they might witness profuse, watery discharges—let either of these signs be a warning, not to employ active medicines, or indeed a caution to withhold every kind, for a while.

*Typhus Form.**

398. The typhus species, of continued fever, seems to be altogether misplaced, if it be looked upon as a consequence of inflammatory fever. For a typhus fever, properly so called, may be regarded, as a distinct and peculiar form of fever; for it has not the same general causes for its production; it does not exhibit the same phenomena; nor does it yield exactly to the same mode of treatment.

399. The form of fever which we are now to consider, depends for its existence upon a state of previous high excitement, and is always a consequence of that condition. And though it shows a number of symptoms, extremely analogous to an original typhus, yet it does not bear with success the same kind of treatment, if we are to credit the cases of many of the European writers. (See Sect. on Typhus.)

400. We consider the typhus tendency after an inflammatory or even the synochus fever, to be altogether contingent; at least we have never seen an instance in which we thought it was absolutely and essentially consequent. We have been called upon to witness this state of the system, where the disease had previously been either neglected or badly treated; but we can with the most perfect truth declare, that this condition has never happened in our hands, where the patient was under our care in the early stage of his disease, or where our plan of treatment has not been interrupted, by the improper interference of friends—that is, we never have seen in our practice, that state of fever called typhus by many, and which agreeably to them, requires stimulation for its cure, but under the circumstances just named.

401. We are perfectly persuaded from long, and carefully made observation, that the fever almost universally called typhus, is, for the most part, of artificial origin;† and further, that it is constantly in the power of improper management to convert the most inflammatory fever into this much-dreaded state of the sys-

* We are perfectly aware of the impropriety of this term in this place; (see Sect. on Typhus,) but we make use of it because it is familiarly employed in this country to denote the state of the system now to be described. And were we to reject it for a more appropriate term, we fear the condition of the system about to be noticed, would be less vividly conveyed to the mind of the reader, who had become familiar with the appearances in question, and who had been in the habit of regarding this state of fever, as a real, or genuine typhus.

† We may with much propriety call the cases, now under consideration, that is, such as have been neglected in the early stage of the disease, “accidental typhus,” since we have agreed to retain the term typhus, for the reasons just stated.

tem; and this by the most simple and easy process imaginable. To effect this terrible change, for such it really is, it is only necessary to deplete insufficiently; or to over-stimulate, during the phlogistic state of the system.

402. What we have just advanced, we believe to be most strictly true; and this convertibility being observed in this disease, though it had an artificial, or contingent cause, it has been mistaken for an inevitable consequence; to guard against which, means are employed, which only hastens, and makes sure, the evil. A dry, dark tongue; a hot skin; a flushed face; a tendency to delirium; and an irritated pulse, are sure to be called typhus, and is too constantly treated as a disease of absolute weakness. Stimulating and tonic remedies are resorted to, and the system is goaded into gangrene, and the patient into the grave, in the course of a short time.

403. Now, we are of opinion, that the above-named train of symptoms do not constitute *typhus* fever, in its true meaning, though typhus, has all of them as attendant symptoms; for they will seldom, or never yield to the stimulant plan of treatment; while we are told, and perhaps bound to believe, by the greater part of the writers, that *typhus* is sometimes cured by bark, wine, volatile alkali, &c. (See Sect. on Typhus.)

404. Our experience is decidedly against this mode of practice; for we have not unfrequently, when called upon to prescribe for this artificial disease, witnessed that it would yield, with pretty constant certainty, to a perseverance in the antiphlogistic and temporizing plan of treatment. We have often abstracted blood, both from the general system, as well as topically, when all the symptoms enumerated, and which are supposed to constitute typhus, were present; and we have witnessed them to change their aspects immediately. For by these means, we have had the dry dark tongue changed to, (sometimes in the course of an hour,) a moist, whitish one; for the dry, hot skin, we have had a cool, moist one; for the flushed face, we have had a pale one; delirium has been arrested; and the irritated pulse, has been converted into one of a mild, and open character.

405. One of the most dangerous errors in the practice of medicine, in prescribing for the name of the disease, instead of attending to the state of the system—that is, paying a strict attention to the state of the pulse; the degree, and seat of pain; and the state of skin. For if the pulse be tense and active; pain acute; especially, in the head, chest, or region of the stomach; the skin hot, and dry; the tongue dry; the teeth encrusted, and the mouth black; the fingers employed in picking the bed-clothes, or the arms twitching with subsultus tendinum, we do not hesitate to abstract blood in one way or other, be the period of the

disease what it may. In this I am supported abundantly by Dr. Tweedie. "When the pulse was sharp, and the eye injected, notwithstanding apparent prostration, and a dry brown coating on the tongue, I have seen a few ounces of blood from the arm of very great benefit. Stimulants under such circumstances are *always* injurious, and generally render the situation of the patient quite hopeless." "I am convinced that such symptoms are frequently *brought on* from the neglect of early evacuations, and the cooling treatment in the beginning of the disease." Tweedie's Illustrations, pp. 166, 167. We would especially direct the young practitioner's attention to these declarations of Dr. Tweedie, as it may correct no uncommon error of medical education.

406. Nor would this be all; we would purge as just directed, (page 81,) and observe a rigid antiphlogistic regimen throughout. We would do this, because we could appeal to our experience for the comparative success of the two methods; for the time was, when we went with the current; stimulated as fearlessly as any one; and lost patients as certainly as any other practitioner. But for many years past we have abandoned this mode of treatment; and by doing so, if we do not deceive ourselves, we have carried patients through, that would, we sincerely believe, have succumbed under the other plan.

407. If then, we have the misfortune to meet with this artificial disease, we treat it, as if there were still a lurking inflammation present in some one of the viscera; or as if the morbid irritation of the pulse could only be subdued by a sedative, or tranquillizing mode of treatment. That is, by aperient medicine, the (perhaps) loss of blood; a mild regimen, and the total abstraction of all stimuli, either in the form of food, or medicine; if we except the occasional employment of blisters; or now and then, perhaps the use of laudanum. To be successful therefore in this state of fever, only requires, that the evacuations should be suited to the condition of the system, for evacuants must be employed.

408. But let us not, however, be understood to insinuate, that no recoveries take place under the stimulant plan of treatment; for certainly there have been instances of this kind, if we are to believe practitioners; so there have been escapes from shipwreck, or the carnage of battle; or from the deadly plague itself, under the most preposterous treatment possible, or under no treatment whatever. But can any one flatter himself, that the recovery of a patient from typhus after the use of stimulants, is an instance of the triumph of remedies? Have not the natural energies of the system done most in effecting the cure?

409. Let us now consider the state of the system; while la-

bouring under a fever so commonly, though so wrongly, called typhus; and in doing so, let us fairly and without prejudice, endeavour to ascertain the precise state of the arterial, and nervous systems, at this time; and from this examination, see whether a stimulating plan of treatment is fairly deducible.

410. In all the cases we have witnessed of this disease, symptoms, decidedly marking an inflammatory state of the system, have, to a greater or less extent, been present, for a shorter or a longer period—that is, there had existed, a hot dry skin; a pulse full and hard; head-ache, of more or less severity; high-coloured, or very pale, crude urine; a white slimy tongue, and sometimes local determinations, manifested by acute pain, &c. Now if these symptoms do not betray a phlogosed condition of some one of the viscera, we should be at a loss to determine, an inflammatory state of the system under any circumstance, and if they do not call for the employment of the lancet, or other depletory means, we do not understand in any case whatever, where they are indicated.

411. But should these means be neglected; inadequately urged; or too soon withheld; we shall find, a change in several of the phenomena; but none in the general character, or type of the fever. There will as certainly be present, an inflammatory condition of the system, as there was before the change took place, either by neglect, timidity, or improper views. And though the system will not bear depletion to the extent it would have done before the vessels had in part destroyed their own powers by excessive previous action, it nevertheless requires it to an extent, that must be regulated by the apparent force of the symptoms at the moment—at all events, tonics and stimulants, will be destructive.

412. The pulse, and the local determinations, will be never-failing guides upon such occasions to the attentive observer; especially, when combined, with several other of the phenomena above enumerated; as the flushed face, hot skin, delirium, &c. &c.

413. The pulse in such cases, will constantly declare its irritation; that is, it will be both quick, and frequent; (see par. 352,) with a marked degree of incompressibility, though small in point of volume; and these are never-failing marks, that the system is labouring under phlogosis, in some one part or other; and from which, it cannot be relieved, but by adequate, and well-directed evacuations.

414. Now, the great error in practice lies, in mistaking this state of pulse, for a pulse of debility; because, it is accompanied by certain changes in the febrile phenomena, which have been too constantly and wrongly associated, with a state of debility,

and which it is supposed, requires for its removal, tonics and stimulants. The other symptoms accompanying the state of pulse just described, unfortunately, from mere association, lead to the same conclusion. Such are the dry, and loaded, or the dry, and polished tongue; a circumscribed red, or hectic cheek; confusion of intellect; a hot, parched skin, and more or less of sub-sultus tendinum. We would now ask, is there any thing within the range of pathological research, or practical observation, that countenances the belief, or that establishes the fact, that the symptoms above enumerated, are proofs of an over-prevailing debility, which can only be removed by tonics and stimulants?

415. We hesitate not, to say, there is no observations, either pathological, or practical, that can lead to such conclusions. On the contrary, we can with the utmost confidence declare, that we have seen all these symptoms vanish, by general or topical bleeding; by purging; by a strict antiphlogistic regimen; by sponging the body; by cold local applications, and by sudorifics. And further, that we have almost invariably seen them aggravated, by the tonic, and stimulating modes of treatment. "I have seen," says M. Déchenaux, "a young woman getting up in a few days from her lying-in bed, in the most complete adynamic state, in consequence of suckling twins, and who did not take nourishment in proportion. But her tongue was pale and moist, and the system without febrile movement. With a view to elevate her strength, tonics were given beyond the necessity of the case, and presently her tongue became dry, rough, and covered with a brown or nearly black coat, as also the lips and the teeth—fever now declared itself; the pulse was small and frequent; the heat acrid, especially upon the abdomen; it became distended with flatus; fetid and involuntary stools. The decoction of bark which she had for her common drink was suspended; the camphor and other stimulants were replaced by simple lemonade, and broth." And Duges says, "The fourth period of fever, (colaps, asthenia,) is always an embarrassing state of the system to the physician, as frequently the mildest stimulants excite a fatal superaction; fatal by the exhaustion it redoubles."

416. There seems to be a species of infatuation upon the subject of typhus, that is no less surprising, than mischievous. Surprising, because, no adequate cause can be assigned for it; and mischievous, because, it leads to the employment of remedies which are decidedly destructive of human life; for the apprehension of an event, which in itself, is altogether contingent, leads to a practice, that seems the absolute production, of this artificial species of typhus. Thus, the fear of debility, and its supposed inseparable attendant, (typhus,) are attempted to be

guarded against, by the administration of remedies, altogether unsuited to the nature of the disease; or rather,* to the condition of the system. The nervous and vascular system, have now to contend with the force of the remote cause, as well as to bear with the stimulation, which a narrow pathological view, has called into requisition.

417. The disease in question, has an anatomical character without doubt; and though, we do not consent either to Broussais, or Clutterbuck's exclusive locations, for this character, (as both are certainly right at times,) yet we are persuaded, that in every instance of this disease, *some one portion of the system, has been acted upon in an especial manner by the remote cause*; which will have the effect perhaps, of modifying the force, and perhaps the succession of phenomena attendant upon the disease when about to be developed, or after this has fully taken place.

418. We cannot well be certain that there is not a phlogistic state of some one portion of the system; and which may be the cause of the irritated pulse, and the other symptoms attendant upon this state of fever; for sometimes we have no other evidence of its existence than the pulse; as there may be no local pain to detect the lurking mischief. In this situation of things, that is, of local inflammation, stimulants would be highly injurious; for they would with the utmost certainty increase the evils they were intended to remove.

419. It is therefore always safest to trust to the mildest, and most temporising plan of treatment; by this we give the recuperative powers of the system a chance of doing something in favour of the patient. On this account we pay attention, first to the state of the alimentary canal; and if this be affected by loose, black, fetid stools, we give mild aperients until their character change; for it is in vain to attempt the relief of the system, while these stimulating substances occupy the intestines. Second; we pay a great regard to the condition of the skin; if this be dry and hot, we cause it to be sponged with cold water, and give the neutral mixture, or the sweet spirit of nitre;* if partially cold,

* There are few articles which are so decidedly refreshing to the over-heated system, and the parched mouth, as the sweet spirit of nitre; it may be given in forty-drop doses in a little sugar and water, or combined in a smaller proportion with the neutral mixture, or Mindererus' spirit, (see Art. Spirit of Mindererus.) We may here however make a few observations upon the sweet spirit of nitre, that are of great practical import. This medicine is by most practitioners looked upon as possessing very few positive powers, or active properties—it has therefore been most negligently prescribed, and has in consequence often disappointed expectation, for which it has been as loudly as unjustly condemned. This discrepancy has arisen, from improper doses having been given; for it is commonly received as a mere placebo; this is a mistake. This medicine when given in small doses, (that is, doses not exceeding forty

we endeavour to establish an equality of temperature, by warm applications. Third, to the state of the lower extremities, and the degree of intellectual sensibility. If the legs are disposed to become cold; and there be delirium or stupor, we apply blisters to the calves of the legs. If there be no unusual tendency to coldness in the limbs, and if the mind be much affected, we have the blister applied between the shoulders and down the spine. Fourth; we attentively watch for the appearance of local inflammation, or determinations. The existence of these, are sometimes, it must be confessed, sufficiently obscure, if no other symptom than pain is to be regarded as evidence of them; but in this we must not be mislead; since pain is not the constant attendant upon these conditions; the pulse must be attentively examined. It will be well to bear in mind, that both inflammation, and congestion or engorgement, may happen at any period of the disease; and when extensive, will very much influence the treatment. For though inflammation may really exist during the whole progress of the disease, or supervene at any period of it, yet its character will in great measure be determined, as it may be initial, or secondary. In the first instance, it will bear a greater loss of blood, than in the second; and the loss of blood, either directly or indirectly, is absolutely necessary. In the first case, especially in the early part of it, bleeding from the arm may be essential, and which will be clearly indicated by a full, tense pulse; in the second, leeching or cupping the part, which is the seat of the local aberration, will be all that may be required; or that the system will bear.

420. We have said that pain does not always betray the exact seat of the inflammation, or engorgement; this is strictly true; but the spot or viscera, may be known with considerable accuracy, by certain embarrassments in the functions of such viscera as may be affected. Thus by delirium, we may declare with almost a certainty, that the seat of the local affection is in the brain or its appendages; a hurried, very slow, or a laborious breathing, may detect its seat in the lungs, or pleura; by a soreness, fulness, and a desire to lie upon the right side, we may have a just suspicion that the liver is its location; by a very scanty supply of a very high-coloured urine, or an entire suppression of it, we may declare the kidneys to be involved.

drops once in two hours for an adult, and in proportion for children,) has a most tranquillizing influence upon the system when it is labouring under fever of feeble action, and dry skin. It also disposes with considerable certainty to the surface; especially, when combined with the neutral mixtures, and antimony. And it contributes very happily to diminish the unpleasant after effects of laudanum; we have known patients most pleasantly influenced by this combination, that would have suffered, (if they could trust their former experience,) very much, had they taken the laudanum alone.

421. This being determined with as much certainty as the nature of the case will permit; the proper remedies immediately present themselves; namely, bleeding, followed in many instances by blistering. In the first case, blood may be abstracted from the forehead, by leeching, cupping, or by the division of the temporal artery. The quantity to be drawn must always be determined by the violence of the symptoms, and the state of the pulse. In the second, cupping or leeching should be performed from the lower part of the neck, and from between the upper portions of the shoulder blades. In the third, from immediately over the region of the liver, and by the same means. In either of these cases, the loss of blood may be followed by a blister; *a*, when the head is affected, upon the neck over the parts pointed out for the cupping or leeching; *b*, when the chest is affected, to the same part; *c*, over the region of the liver, when that organ is the seat; *d*, by leeching or cupping, from immediately over the kidneys. (See pars. 134, 135, 136, &c.)

422. We order as drinks barley water, gum Arabic water, tamarind water, toast water, or weak lemonade, to be given cold; in small quantities; but to be frequently repeated; and the thin jellies of tapioca, rice, or sago sweetened, and rendered pleasant by lemon juice, to be given from time to time, in very moderate quantities, as nourishment. We prohibit in the strongest, and most unequivocal language, the use of any animal juice, or jelly, in any shape or form whatever; as well as every stimulating drink, or liquor, either fermented or distilled. The free ventilation of the room, by the constant admission of fresh air, is an indispensable attention in this form; therefore all the means and cautions suggested in page 36, must be faithfully attended to. Also changing the body, and bed-clothes, as often as circumstances will permit; especially if the weather be warm. We must never listen to the idle prejudice of many, that "changing the clothes often, is weakening."

423. Let us now inquire into the state of the nervous system, in this fever. In doing this it will be well to consider, first, the remote or morbid agents; second, the part of the system on which they exert their influence; and third, the phenomena resulting from their application. In pursuing these inquiries, it may be well to suggest, that the nature of the present work will only permit us to glance at each of these subjects.

424. First. The remote or morbid agents, capable of causing fever, may be, *a*, marsh miasmata; of these effluvia, we know nothing; either chemically or physically. They have eluded every attempt at examination hitherto made; nor is it probable, that either chemical tests, or analysis, will ever instruct us in their absolute nature. The spots from whence they emanate,

are well known; but the causes necessary or accessory to their formation, as poisons, are at present altogether inscrutable. It is true, we are acquainted with certain physical agents that are essential to their existence; as heat, moisture, and vegetable productions; but more is required than these, for the formation of the remote cause of fevers; as we see these three agents united frequently without the production of malaria. As regards the mere physical properties of the air, it is not necessary to the production of malaria, that they should be in the slightest degree deteriorated, if we can place any reliance upon the experiments performed with a view to determine this point. For the causes of malaria exist without the possibility of detection in an atmosphere, that offers to the tests of the philosopher, proofs of the most entire salubrity. We therefore shall lose nothing by confessing our most entire ignorance as to the nature of such miasms, as are capable of causing fever; with their effects only are we familiar.

425. These remote agents may exist however, in different degrees of concentration, or dilution; and on these degrees, will the nature of the fever, or rather will the different phenomena and type of fever depend; making at the same time allowance for individual susceptibilities.

426. *b.* These agents may be a product, *sui generis* perhaps; arising from the combination of bad ventilation; effluvia from human bodies when too closely confined, or too closely crowded together; with a deficiency of wholesome food and drinks.

427. *c.* They may arise from a diseased body; and thus propagate themselves by sending forth noxious emanations, which when received in the healthy body, are capable of exciting in it the same kind of action, by which they themselves were produced—that is, by contagion.

428. Second. The part of the system on which these morbid agents act, must necessarily be the nervous system, as we know of no other that gives susceptibility. Their action upon this system will be in different degrees, as the poison may be more or less concentrated, as the dose may be larger or smaller, or as the susceptibility may be more or less exalted. The particular part of the body to which these remote causes are applied, so as to act upon the nervous system, is not so settled by physicians as to be beyond the power of controversy—the greater number of pathologists, however, incline to fixing the seat in the stomach.

429. Third. If the remote causes be susceptible of the modifications above named, and the nervous system liable to the different degrees of susceptibility just spoken of, it will follow, that the influence of the remote cause will be in strict obedience to

these conditions; and hence the different character or type of fever. It will, therefore, happen, that a certain dose of the poison, with a given degree of nervous susceptibility, will in one instance produce fever, the character of which shall be highly phlogistic; another as strictly inflammatory, but not as highly so; another with still less of the inflammatory type; and with a fourth, the nervous power may be so prostrated by the strength, or concentration, or peculiarity of the poison, or the remote cause, that no febrile reaction will take place.

430. It will then be evident, if this be true, that all fevers may be comprised under two general heads, namely; 1st, those in which there is a greater or lesser degree of inflammation; 2d, those in which inflammation does not exist; as in the worst forms of *pure typhus*. (See Sect. on Typhus.)

431. The first effect of the remote cause we have observed, is upon the nervous system; to which, however, it is but a short time confined; for such is the nature of the arrangement, and of the mutual relation between it and the circulating system, that the latter is soon called into action; and the quality of this sympathetic action will be determined altogether-perhaps by the degree of impression made upon the former. So intimate and inseparable are the relations between these two systems, that the one cannot be acted upon with any force by the remote causes just named, without exciting the other to inordinate action, or prostrating it below the power of action.

432. The circulatory system, however, is evidently dependent upon the nervous, for the various modifications of its action; while on the other hand, the nervous system is reciprocally dependent upon the circulatory.

433. Thus, the circulatory system could not have its action maintained without the aid of the nervous; nor could the latter perform its functions longer than the former continued to circulate a healthy blood. For the instant that venous or unoxxygenated blood is made to circulate in any part or portion of the nervous system, that instant that part or portion has its actions to abate materially, or altogether to cease. If this should be in the brain, or the medulla oblongata, respiration would be very imperfectly performed, or death would ensue, from this process being stopped. If there be only a small deficiency of oxygen in the blood, the circulatory system will feel the loss of this abstraction; but the change will be less marked. If the blood be more than ordinarily charged with oxygen, the circulatory system will present phenomena that mark that form of fever called inflammatory; and the nervous will be exalted to great sensibility, or extreme mobility.

434. It will therefore follow, from what has been said, that

the character of febrile phenomena will almost exclusively depend upon the impression made by the remote cause upon the nervous system, be the nature of that remote cause what it may—hence the variety of types in fever.

435. The blood itself, while circulating, is also subject to changes in its structure, if we may so term it; and from these changes, some of which are made evident to our senses, much is inferred in the treatment of diseases of the febrile kind. To be acquainted with the more evident sensible properties of the blood, is very satisfactory, but not always so important as is generally imagined. For from the appearance of the blood alone, we should not deduce, either the necessity for its further abstraction, or for our withholding the lancet. If we did so always, we should sometimes abstain, when its loss would be all-important—for instance, when it is in the condition called *dissolved*; as is the case sometimes in the commencement of violent onsets of yellow fever; (see par. 525,) or, we should continue to draw it, when each loss would be but to hasten the death of the patient; as in hectic and in rheumatic fevers; for here we have seen it cupped or sizzly, but a short time before death.

436. Now all the varied appearances of the blood are caused by the particular actions of the heart and arteries; and the heart and arteries must necessarily depend upon the state of the nervous system, for their peculiar mode of action. Changes are therefore effected upon the whole mass of circulating fluids in the course of a very short time. And these changes are not less remarkable than sudden sometimes; thus death, from a blow upon the stomach, or from lightning, are said to prevent the coagulation of the blood.

437. From this view of the subject, the nature or quality of the remote cause is not a matter of indifference, at least as regards the phenomena and type of fever. Those arising from marsh miasma, in otherwise a healthy or a duly oxygenated atmosphere, are generally fevers of the sthenic or inflammatory kind, provided the poison be not too much concentrated, or the dose too large; for the mere presence of oxygen does not destroy the cause of malaria. But the absence of this important principle renders, (perhaps miasmata,) but certainly the combinations of the various exhalations arising from filth, and from human bodies in crowded places, much more active or virulent.

438. Of this, however, we have few opportunities to witness, in this country, though some of our public institutions, when unusually crowded, bear testimony to the truth of the statements of the European writers upon this subject. It seems to be agreed that the character of a fever generated in an impure atmosphere, will be quickly altered, by a change to a more pure situation.

By this change, two very important circumstances take place, both of which doubtless contribute to the alteration in the character of the fever generated in the impure atmosphere—namely, a due and healthy supply of oxygen, and the removal from the impurities to which the location was liable.

439. So marked, indeed, is the influence of this change sometimes, that we are informed by Dr. Burne, that “patients in whom, in their own habitations, the powers of life were very low, and indicating cordials, became so altered after the removal, as to have a vigorous circulation, and signs of inflammation, which call for the abstraction of blood.”*

440. In these cases, and in all others of the same character, the inflammatory nature of the disease was only masked by the impression made upon the nervous system by the remote cause or causes; giving to the system a fallacious appearance of prostration and feebleness, which would be as certainly augmented by stimulants, as it would be diminished by well-proportioned depletion. How depletion acts in such cases to remove or diminish the force of the remote causes, our limits will not permit us to inquire. All that is necessary to understand is, that it is a practical truth, or else all the latest and best writers upon the subject are greatly deceived. And this simulated or indirect weakness, must not be mistaken for an absolute exhaustion, and supposed to require for its removal, cordial and stimulating remedies.

441. The disposition which certain continued fevers discover, sometimes even in the early part of their course, to take on, or simulate the typhus type, has too frequently led to the most destructive practices for its cure. We have inculcated this belief on our part, again, and again; in the hope, that those who may have the management of fevers, may at least pause, before they decide against a plan of treatment, opposite to their usual routine, but which we most sincerely think has both reason and experience on its side. The best, and latest European writers upon the subject in question agree, without a dissentient voice, upon the following general principles.

442. First. That in all adynamic fevers, there is more or less inflammation almost constantly present, either general, or local.

443. Second. That even during this more or less inflammatory condition of the system in general, or in portions of it, that the most unequivocal evidence exists, that, a certain combination of symptoms will present themselves; such as a dry, parched

* Burne on Typhus or Adynamic Fever, p. 43.

tongue, and lips; flushed cheeks; low, muttering delirium; a dry, rough, unrelenting skin; lying upon the back, with the legs drawn up; high-coloured, scanty urine; subsultus tendinum, picking of the bed-clothes; and which symptoms, have constantly, or with very few exceptions, been called typhus, or typhoid symptoms.

444. Third. That the symptoms just enumerated, do not give evidence, that all inflammation is at an end, when they make their appearance, as is generally supposed.

445. Fourth. And that when the treatment is made to conform to such opinion, by the employment of tonics, and stimulants, that the most serious consequences have followed the practice.

446. Fifth. That though the symptoms mark a less active state of inflammatory action, yet that the action present, nevertheless is of the phlogistic kind; and cannot be relieved by a stimulating plan of treatment.

447. Sixth. That nothing in practice, is more decidedly wrong, or more actively mischievous, than the belief, that, when the system will not bear active depletion, that it necessarily calls for the opposite mode of treatment.

448. Seventh. That it is now agreeable to the best experience, that, the employment of stimulants,* is sure to be followed by a marked increase of every bad symptom; and that when recoveries have taken place under the stimulating plan of cure, they have only marked the strength of the recuperative powers of the system, and not the eligibility of the plan adopted.

449. Eighth. That when the system is in that forlorn condition, in which we dare not deplete; and that we *must not stimulate*, it is the best, and most successful practice, to remove all the physical causes in our power, that may have a tendency to depress the oppressed system; such as impure air; offensive smells; soiled clothes; too much heat; too low a temperature; too great a weight of bed-clothes; and too much company. To administer such kind, and quantity of nourishment, from time to time, as will offer the least trouble to the feeble digestive powers; (such as has already been specified at par. 217,) and such drinks, as will make an agreeable impresssion upon the gustatory nerves; but which shall not convey to the stomach, any decided stimulating agency. To promote to the last, the alvine discharges;

* "The state of oppression and apparent debility induce the practitioner too often in such cases, to prescribe a tonic plan of treatment; but it should be remembered, that the low, depressed condition of the patient, is the effect of inflammation in the brain, or its membranes, which will inevitably be increased by the administration of cordials." Tweedie's Illustrations, p. 167.

either by injections, or by the mildest aperients;* to effect, (and if necessary by even artificial means,) the flow of urine.

SECT. IV.—TYPHUS.†

450. The disease, strictly called typhus, we have never witnessed, though we have strong ground to believe, that it has occasionally appeared in the alms-house of this city. The disease bearing this name, has several very important, and remarkable peculiarities, which serve to distinguish it from every other form of fever; and which has induced Dr. Bancroft to say—

451. “I believe in the existence of a fever, *sui generis*, strictly contagious, (unconnected with any of the exanthematous diseases,) and, therefore according to my view of the subject, derived exclusively from its own *specific cause*, or contagion. In this, which I consider as the *only* contagious fever, there are I think, some varieties; but without any differences sufficient to form more than one species.”‡

452. The opinions of Dr. Bancroft, upon this subject, are very valuable, as every reliance may be placed upon his facts. They are for the most part derived from his own observations, for which he had frequent opportunities, as well as large sources to collect from; we shall therefore, cite in his own words the reasons for the opinions, just stated.

453. He says, p. 89, et seq. “Every thing which I have been able to discover, or ascertain, respecting the nature and properties of contagion, induces me to consider each of its several species as a peculiar morbid quality or power, imparted to certain animal secretions, in consequence of some particular, though un-

* In the last stage of the fever under consideration, it is a matter of great consequence to secure a regular daily discharge from the bowels; for this purpose we have proposed the mildest aperients, and injections. Of the former, the simple syrup of rhubarb is one of the best—a tea-spoonful of this may be given once in an hour or two, until the effect is produced; or a solution of manna in the drinks of the patient, will often be sufficient. The injections at this period, may be warm molasses and water. If diarrhœa, (but not if it be of the critical kind,) attend, it should be moderated by the chalk julep; or by small doses of laudanum. (See Chalk Julep.)

† “Typhus fever, by which term I wish to denote those more severe forms, in which, from the commencement, there is more considerable disturbance in the brain and nervous system, great prostration of the muscular power, with affection of the mucous membranes, and not unfrequently of the cutaneous and glandular systems. We find this form of fever is often attended also with *inflammatory complications, requiring local and sometimes even general abstraction of blood.*” Illustrations of Fever. By A. Tweedie, M. D. p. 27. It would be well for many of the American practitioners to attend to the declaration marked by italics, and to take warning, against the too liberal use or rather abuse of stimulants, in that stage of fever they term “typhus.” See par. 400 to 407.

‡ Bancroft on Yellow Fever, &c. Davidge’s Ed. p. 337.

known, actions excited in the living body, when actually disordered, by the very same species of contagion previously, and in like manner, elaborated in another body whilst labouring under a similar disorder from a similar cause; and therefore, though we are unacquainted with the origin of any one species of contagion, yet, considering the properties manifested by all, ever since they have been known to exist, we may conclude, that being thus produced, exclusively by, and within the living body, each is capable of exciting, in other bodies, the same morbid action, or disease, which occasioned its own production, and of thus maintaining and propagating itself, indefinitely; and consequently, that though contagion be a morbid and morbidic secretion or production, it is also, a natural one, wholly, *inimitable*, either by *accident* or art. If this be true, it must follow that, though noxious vapours should result from those fortuitous, and ever-varying, collections of unclean or putrifying matters commonly denominated filth, which as in the instance of marsh effluvia, may produce diseases, including fever, yet the diseases so produced will be incapable of exciting similar diseases in other persons, and will therefore be destitute of the most essential property of contagion."

454. From these facts, the following important conclusions may be drawn; first, that typhus fever is a contagious fever; that is, it is capable of propagating itself; second, that it is the only fever that possesses this quality, if the exanthemata be excepted; third, that the contagion or poison of typhus, is *sui generis*, and bears no analogy to the emanations from fevers, which have confessedly other causes, than the contagion, or poison of typhus for their production; fourth, that exhalations, from any putrifying masses, whether animal or vegetable, are incapable of producing typhus.

455. We learn also from the same source, that typhus is very much confined to Great Britain; and that when it has become prevalent in other places, it was constantly introduced into such places from Great Britain, if we except Holstein and Denmark, where typhus is a frequent disease; and such an introduction took place in the year 1809, by the Spanish army under the Marquis de Romana.

456. Dr. Bancroft has proved beyond all controversy, that neither moisture alone; putrifying animal or vegetable matter, nor both; nor crowding the sick in ill-aired hospitals; or the well, in a confined space, as the black hole of Calcutta, has ever in a single instance produced typhus. The proofs offered by this candid, and enlightened writer, are so numerous, that our limits will not even permit an analysis of them; we must therefore refer the curious, to the work itself.

457. We have already in several places, borne testimony against confounding a certain condition of the system, in the yellow, the continued, and the remittent fevers, with typhus; because they bear no analogy to it; as they all want the power of propagating themselves, by contagion. This confusion in terms, has necessarily led to injurious practice; and when mischief results from this want of discrimination, it becomes the duty of every physician to oppose such an amalgamation. But Dr. Bancroft does not stand alone in what he has advanced on the subject of typhus; he is supported by several other writers of eminence, and especially, by Armstrong, who has professedly treated of this subject. He says, "it strikes me, that to call any species of fever, typhus, which has not the contagious *essence*, capable of producing an unequivocal typhus, is equally incorrect in logic as in language." He therefore informs us in his valuable essay upon this subject, that "the word typhus shall be limited to the peculiar disease, which is allowed to originate from a specific contagion, and which doubtless, has the power of producing an affection of its own nature, in individuals exposed to its influence." p. 7.

458. Dr. Davidge says, "the typhus is not, so far as my observations have extended, a disease of Maryland, perhaps not of America; at any rate, not south of the New England states. And since, as Armstrong and Bancroft, and most other enlightened physicians, admit contagion as essential to typhus, (I here refer to the typhus of Britain and Ireland,) it must be highly absurd to speak of the typhoid condition of diseases, in regard to those diseases that are not admitted to be contagious in any stage. For surely, no disease can be said to be like another, that is deficient in an essential quality. Hence, it appears, how unphilosophic the language is, that states the low and collapsed condition of the body, in remittent bilious fever, synocha of the winter, or pneumonia, to be typhoid. These diseases are wholly distinct from typhus, in all their stages, cause, and sensible phenomena."*

459. Typhus is a disease of cold weather exclusively; and its progress is as certainly, as constantly arrested by hot, or even by warm weather, as yellow fever is by cold weather, or frost. This is a remarkable and an important circumstance in the history of this disease; and there is perhaps no one fact in medical history more cordially and generally acknowledged by all writers upon fevers. Dr. Bancroft says, that "typhus is properly a disease of cold climates." p. 342.

460. Dr. John Hunter says, "I have never seen the fever ear-

* Davidge's Edition of Bancroft, p. 518.

lier than the month of November, and I believe it seldom appears so soon. It becomes frequent about Christmas, and increases during the months of January and February; but if they are cold, it continues nearly as common as in the preceding months." He adds, "the heat proves a prevention to the disease, as much as cold forwards its production."*

461. Drs. Trotter, Blane, Lind, &c. all confirm, by their observations, the same thing. With these facts before us, how can typhus be talked of as a disease of warm weather, nay, of summer!

462. Another very remarkable circumstance attends the history of typhus; namely, that it never becomes epidemic, like fevers arising from miasmata; and that when simple, it is always of the continued form. Should the patient, however, have been exposed to miasm, it may cause typhus to assume a disposition to remit, but not without. This disease, therefore, must not be confounded with fevers that may have marsh miasmata for their remote causes; nor with those which may arise "from fatigue, damp habitations, unwholesome or insufficient food, anxiety, grief, fear, and other depressing passions and debilitating causes, which have *no connection with contagion, nor any power of producing a contagious disease.*"

463. We trust we have said enough on the authority of those who have had the best opportunities to observe the origin, habits, and phenomena of typhus to prove, that it is not a disease of the American climate, or but very partially so; and that when it has appeared in our city, if it ever have appeared, it has always been confined to our poor-house. Yet we hear constantly of typhus; and our bills of mortality never fail to record deaths from this fever. We have already confessed we have never had an opportunity of seeing a single case of this disease; nor do we believe it can exist, if its history be truly given by the highly respectable gentleman above named, in our more southern states.

464. It certainly never prevails within the tropics, if reliance can be placed upon the writers on tropical diseases. Dr. John Hunter assures us, "that during more than two years that he remained in Jamaica, he never saw one instance of the hospital fever, though the military hospitals were as much crowded as in Europe." loc. cit. These places owe their exemption from typhus, to the heat of the atmosphere; as heat and typhus together are incompatibilities. Dr. Bancroft says, that "the influence of heat in mitigating, and finally extinguishing contagious fever, was very fully manifested in regard to the troops which sailed from Cork, under the command of Major-General White, for

St. Domingo, in February, 1796. Two hospital ships, in which I had embarked, and sailed from England with the army, under Sir Ralph Abercrombie, having by storms been rendered unable to continue the voyage, and the last of them having landed me on the south-west coast of Ire, I embarked on board a very large hospital ship, the Bridgewater, (formerly an Indiaman,) destined to receive the sick of General White's division, among which a severe typhus fever had prevailed to a great extent, and with great mortality, previous to our sailing from Cork, where most of the sick were left at our departure; but many of the soldiers, apparently well, being exposed to the contagion which existed in many of the transports, or having imbibed it previously, while detained at Cork, fell sick on the passage, and were from time to time removed into the Bridgewater, which soon became full of patients, under typhus fever, which was communicated to several of the orderly men, and nurses, to some of which it proved fatal. It became evident, however, that as we reached, and proceeded in the warmer latitudes, the cases of fever gradually diminished in number, and became much milder; though from the shortness of our passage, and the cool season in which it was made, the *full* effect of heat in extinguishing contagious fever could not have been produced; and, therefore, it was not surprising that a few patients with the same fever, in a milder form, and apparently divested of its contagious power, were sent on shore to the hospitals, immediately after our arrival at Barbadoes. These had probably imbibed the contagion before our arrival within the tropics, and its effects, though moderated, were not wholly prevented by a change of temperature." p. 343.

465. Similar facts could be easily added, were it necessary, or compatible with our plan—enough has been shown to prove, that typhus fever has its own peculiar laws, and phenomena; but none of which belong to any of the fevers of our seasons; consequently, none of such fevers can be typhus.

466. As we have never had an opportunity of seeing a case of typhus, as we have already declared, we shall be indebted to others for a description of this fever. The latest, and perhaps the most approved account we have of typhus as it exists, in Great Britain in general, and London in particular, is that of Dr. Burne, in his Treatise on the Typhus or Adynamic Fever.

467. He says there are two modes of attack. "The adynamic fever frequently attacks young persons in the vigour of youth, between the age of eighteen and twenty-five, having robust constitutions, and who had enjoyed good health up to the invasion of the disease. These peculiarities are remarkable. In order to the production of the adynamic fever, it is necessary that there be a certain state of system; which state depends, in most

instances, on a continued exposure to a poisoned, or contaminated atmosphere. This state then existing, it will be found that the adynamic fever attacks in two ways; and it is of great importance that these should be clearly understood, because they account for the presence, or supervention of inflammation in some cases, and the absence of it in others." p. 13.

468. "In one instance it acts by the intervention of an accidental cause; the other without. When without the intervention of an accidental cause, the condition of the body itself is sufficient to give rise to the phenomena of adynamic fever. When with an accidental cause, the condition of the body, though not sufficient of itself to produce the fever, is yet sufficient to give the fever thus accidentally produced, the peculiar adynamic type. In the one case, the development is slow and progressive, requiring many days, or even weeks; in the other, it is fully formed in a few hours." p. 14.

"Of the Way of Attack without an Accidental Cause."

469. The signs of this mode, are disinclination of food, lassitude, weakness; to these are added slight head-ache, and chilliness. In a day or two these symptoms increase; together with pain in the back and limbs; shivering, followed by heat and sweating; "so that a febrile paroxysm is established." p. 15. These recur daily; especially about noon. Others experience the exacerbation in the evening; others again, will be laid up from the very invasion—in these the symptoms run high. While some will complain for several days, and then be attacked suddenly; and this frequently after a meal. This attack is not commonly attended "by any organic inflammation." p. 17.

"Of the Way of Attack with an Accidental Cause."

470. "That cause is generally a severe cold, from exposure to rain, wind, &c." The initial symptoms much the same, only perhaps more pronounced, and the chilliness, &c. will continue for two, three, or more hours; "when a violent reaction takes place, and the skin becomes hot and dry, the face suffused, with an increase of action of the heart and arteries." "When this fever attacks in this way, organic inflammations are apt to accompany it from the beginning." p. 18.

471. "The adynamic fever being produced in one of the two ways just described, it will be found to differ very much in severity: for which reason, and for practical purposes, it is expedient to divide it into degrees; and these may with great propriety be limited to four." p. 19.

"Of the First Degree."

472. This is mild; merely slight head-ache; sometimes none; some reaction. Appetite poor; tongue covered with a dirty white covering, except the end, which is red, with prominent papillæ and moist. Cheeks flushed, eyes rather suffused; senses dull; great prostration for the existing symptoms. Urine scanty and high-coloured; bowels sluggish; seldom delirium; refreshing sleep during the night. p. 19.

"Of the Second Degree."

473. Considerable head-ache; sight and hearing less acute; noise and light unpleasant. Suffusion and fulness of face; bluish blush on the cheek. Considerable reaction; pulse frequent, rather full and strong, but compressible by moderate force; pulse deceptive; is open from want of tonicity, and may be mistaken for great fullness. Tongue the same, except that the coating is thicker and more dirty. Skin hot, and somewhat tight; dusky suffusion on the skin. Bowels disposed to constipation; belly distended. Urine high-coloured, and scanty; strength greatly prostrated. The patient on the side sometimes, and sometimes on the back. During the day drowsy; during the night delirious. p. 20.

"Of the Third Degree."

474. Third degree severe; great prostration; patient lies on his back; breathes slowly and deeply, as one in a lethargic sleep. Unable to turn, and averse from motion. Can speak only in broken sentences. Tremors and twitchings of the muscles. Cannot stand if taken out of bed. Dullness and torpor of all the senses; obliged to repeat questions before an answer is obtained; complains of a dull pain in the head; great thirst.

475. Face void of expression;* every feature relaxed; skin dusky; purplish, circumscribed flush on the cheek; eyes suffused and glassy, with shreds of mucous matter floating in them. Lips blue; teeth dry and shining; viscid mucus in the corners of the mouth, which is drawn into filaments when the tongue is protruded; this mucus dries, and covers the teeth and lips with

* "Many of the characters of typhoid fever are unsusceptible of accurate description; and of these the most remarkable is the *expression of countenance*, so uniform as to make all typhoid patients, in a great degree, resemble each other."—*Gregory's Elements of the Theory and Practice of Physic*, 2d Am. Ed. p. 66.

blackish sordes. Breath peculiarly offensive. Tongue thickly coated; brown and dry in the middle; red and dry at the tip; whitish and moist at the sides. The pulse seldom exceeding 90; sometimes not above the natural standard; fullish, sometimes rather firm, but always more or less compressible. The skin dry and rather harsh; temperature variable; at one moment high, at another not much increased. Urine always scanty and high-coloured, and becomes turbid on standing. Belly full; tender on heavy pressure. Bowels generally sluggish; sometimes relaxed; dejections dark and offensive; restlessness; constant delirium through the night; frequent attempts to get out of bed; delirium sometimes in the day.

476. These symptoms change in a few days, for the better or worse. If for the better, prostration, lethargy, and dullness, diminished; patient turns upon his side; less viscosity about the mouth; tongue moistens, and commences cleaning; spontaneous diarrhœa of ochre-coloured stools; pulse natural; skin soft and moist; eyes brighten; skin clean; countenance more animated; delirium ceases; sleep refreshing; convalescence. If an unfavourable change takes place; there will be constant delirium; great jactitation; violent and frequent screaming, which only subsides with the powers of life—drowsiness increases; skin becomes purple; temperature sinks; extremities cold—death. p. 21, &c.

“Of the Fourth Degree.”

477. Soon as fever begins, the symptoms become grave. Patient lies upon his back, in nervous agitation, picking the bed-clothes; countenance haggard, and visage sharp; carotids vibrate; respiration quick; breath strong with the odour peculiar to this fever. The eyes suffused and sometimes convulsed, moving from side to side; eyelids depend, and there is a ghastly stare. Mouth parched; sooty coating on tongue, dry, hard; lips and teeth covered with black sordes. Skin hot, dry, harsh; frequently spotted with petechiæ. The pulse from 100, to 120; stroke unsteady, open; very compressible. Bowels relaxed; belly tender on pressure, and full; stools black and highly offensive, and passed with the urine involuntarily. Voice husky; articulation muttering; emaciation rapid.

478. Under these circumstances the disease frequently runs a rapid and fatal course. If the patient survive, recovery is slow. A favourable change is announced by the countenance improving; abatement of the violence of all the symptoms; and by a return of sleep and consciousness. Secretions return; tongue clears; ochre-coloured frothy stools. Urine more abundant; de-

posites a lateritious or brick-dust coloured sediment. Pulse less frequent, and gradually convalescence.

479. "When the secretions are re-established, and the tongue has cast off its fuliginous coat, the lips and tongue are left red, tender, and sore, and as it were raw. And this condition extends throughout the mucous lining of the intestinal canal, causing great soreness of the belly, keeping up the diarrhœa, and rendering the stomach and bowels highly sensible to the operation of medicines, or the presence of undigested food; which makes it important to pay strict attention to this condition in the treatment of persons recovering from the adynamic fever." p. 26.

480. When it terminates fatally, all the symptoms are aggravated, strength diminishes; the patient continues supine, and motionless; the arms stretched out, or cross the chest; visage sharper; face sweaty and cadaverous; eyes fixed; eyelids nearly closed; belly tympanitic, temperature diminished, extremities cold; pulse rapid, small, and weak, faltering; life gradually extinguished. p. 27.

"Treatment of the First Degree."

481. "The character of this degree of the adynamic fever is so mild as to require very little medical aid."

482. "It is only necessary to supply the patient with good air and fresh linen; to keep the bowels rather freely open by any aperients; (as castor oil, rhubarb, magnesia, and senna and manna, but Dr. B. prefers rhubarb,) and to give a simple saline, as the liq. ammon. acet. in the dose of three drachms three times a day."

483. "No other food than gruel to be allowed till the headache and flushing of the face have subsided, and the tongue has become clean; when a nutritious diet may be gradually resumed."* p. 206.

"Of the treatment of the Second Degree."

484. "The object is to moderate the symptoms, and to protect the various organs against an undue momentum of blood, which may lead to inflammation in any organ so disposed."

485. "This end will be effected by the abstraction of six or eight ounces of blood from a vein, which may be repeated in forty-eight hours, if the first bleeding has been beneficial, and

* It may be useful to solicit the attention of the reader, to this mild mode of treating typhus—here no stimulants are prescribed—no wine whey; no bark; no volatile alkali, are ordered.

circumstances call for a second; but if the general febrile excitement has been moderate, and the head-ache is still severe, two or three ounces may be taken from behind the ear, with the cupping-glass, with great advantage."

486. "The bowels are sluggish, and the belly often flatulent; which must be counteracted by aperients given every or every second day, so as to keep them freely open; and the more dark and offensive the dejections, the more are aperients to be persevered in."

487. Calomel in two grain doses with six or eight of rhubarb may also be given as an aperient, "but as the belly is flatulent, which shows a disposition to the irritation and organic affection of the intestinal canal peculiar to this disease, it is prudent to use mercury sparingly, and towards the decline of the disease, discontinue its use altogether." p. 208.

488. A three drachm dose of the liq. ammon. acet. should also be given every four hours. The night delirium requires no particular treatment. The hair should be cut close; and the head frequently sponged. p. 209.

"Of the treatment of the Third Degree."

489. Blood is not to be taken from the arm; but much relief is afforded by taking three or four ounces from behind the ear, by cupping, and this may be repeated, in a day or two if the stupor continue. A blister of not a large size should be applied to the crown of the head, in preference to between the shoulders. p. 211.

490. "It is in this degree of adynamic fever that the external use of mercury is so eminently serviceable; because of its unrivalled power to bring about, speedily, a re-establishment of the secretions; the mercury is to be rubbed in on any convenient surface of the body; as the inside of the thigh, in the quantity of about half a drachm of the ung. hydrarg. fort. every night and morning, till it effects the desired purpose." p. 211.

491. The bowels are to be daily moved by aperients, though the bowels be relaxed, and continued until as long as the stools are dark and offensive—rhubarb is particularly appropriate in six or eight grain doses. After the bowels have been well opened, and blood abstracted, a grain of opium, or hyosciamus may be given if the delirium and restlessness continue.

492. If the ochre-coloured diarrhœa supervene, it must be treated by "demulcent drinks, as barley water, rice water, gum water, and the like"—"as regards the diarrhœa no other treatment is called for, unless it be protracted and evidently affects the patient's strength; in which case the irritation of the bowels

must be allayed by small and repeated doses of opium, as three drops of the tinct. opii."

493. "Sometimes at the commencement of this diarrhœa, the belly will continue flatulent and the dejections offensive; in which case the tongue, though nearly clean, will be dry and of a light-brown, and the cheeks will be flushed." p. 234.

494. Aperients must here be used; but they must be given in very small doses. Rhubarb is to be preferred; and five grains is a sufficient dose, and repeated every six hours, until the dejections lose their offensive smell, and the tongue becomes clean. p. 235.

"Treatment of the Fourth Degree."

495. "The treatment should be directed particularly to the intestinal canal, as the nervous excitement and debility are kept up and augmented by any loitering or lodgment of the black offensive fæces. Rhubarb, is unquestionably the best aperient." Eight or ten grains of rhubarb with as much of the confect. opii. and one drachm of syr. zinzeb. in cinnamon water;* and be repeated every four or six hours until the bowels are satisfactorily emptied. Castor oil if preferred may be given in two or three drachm doses in a glass of Sherry wine. The hair to be clipped; the head sponged with cold water; and tepid or warm ablution of any part of the body where the skin is dry and harsh is very refreshing. p. 215.

496. "Mercury, as before advised, should be had recourse to, a saline effervescing draught of half its usual strength; as ten grains of the carbonate of potassa with two drachms of fresh lemon juice. As soon as the bowels are well cleansed, opium may be given as just directed, also a decoction of the bark, in the dose of one ounce and a half;† or the sulphate of quinine, in the dose of one grain, with one minim of the diluted sulphuric acid, and a drachm of the tincture of orange peel. The bark and effervescing mixture‡ to be given alternately. p. 216.

497. "If the prostration be very great, and the bowels re-

* Take of Rhubarb, - - - -	8 or 10 grains.
Confection of opium, - -	10 grains.
Syrup of ginger, - - -	1 drachm.
Cinnamon water, - - -	Enough to make into a draught.
	Mix together.

† Decoction of bark.

Take one ounce of bark in powder.

One pint of water.

Mix, and let them simmer slowly for twenty minutes; permit it to settle, and give a wine-glassful every two hours.

‡ For effervescing mixture, see Appendix, Art. Effervescing Mixture.

lieved, it must be supported by porter, or brandy and water; beginning with them very sparingly, and increasing according to necessity. p. 216."

498. We have thus given the general outline of Dr. Burne's account and treatment of typhus fever; it will be quickly perceived, that his plan is very different from that, which is generally pursued in this country by many practitioners for this supposed disease as supervening upon our miasmatic fevers, and as we have had occasion to remark at p. 130 et seq. With those who dread the onset of typhus in every species of fever; this practice will not be altogether approved of—"what," say they, "bleed, cup, and purge, when typhus is impending!! No, no, give bark, wine, volatile alkali, brandy, ether, phosphorus, &c. &c. if you mean to cure the disease."

SECT. V.—YELLOW FEVER.

499. By yellow fever we mean a disease of specific character, one that differs from the endemic remittents of tropical climates, and from those of the southern portions of our continent. This disease, by some, has been considered as only an exalted form of the bilious remittent; but there are peculiarities in its history that show it to be a distinct disease. We shall therefore enumerate the several remarkable circumstances connected with it, which have led us to adopt the opinion of Jackson and some others on this subject, and which in our opinion are conclusive.

500. 1. It has been remarked by many of the physicians and inhabitants of the West Indies, that the negroes immediately from the coast of Africa were never attacked with this disease, and the native West Indian, or Creole, is likewise exempt from it, provided he uninterruptedly remain in the place of his nativity; but should he or the negro pass a year or two in Europe, or in the higher latitudes of America, they would be liable to this complaint.

501. 2. Strangers are particularly liable to this disease on their arrival in the West Indies, or on certain portions of our continent. But should they escape it for the first or second year, they will most probably be exempt from its attack; and more certainly, if they had suffered from the endemical fever of these climates. This is what is familiarly termed "the seasoning."

502. 3. It has been very rarely found to attack the same person a second time, while the endemial fever may be repeated several times.

503. Some of these facts are well established, and seem decidedly to mark a difference between the bilious remittent and yellow fever. Nor are we entirely indebted to the writers on

tropical diseases for these marked peculiarities of the yellow fever; for the same has been observed, and recorded in part, if not entirely, in our own country.

504. The first visit this formidable disease paid us, which is still fresh in our memories, was in 1793; and it was then frequently observed, that the Creole population, which was at that time considerable, was almost entirely exempt from its attacks;* and more especially the coloured part of it. It must be remarked that there was at this period a large influx of West India inhabitants into our city, and chiefly French. But after they had remained here a few years, they seemed to lose in a degree their immunity from attack; accordingly, instances of this disease occurred among them, as well as among the native inhabitants.

505. It was also remarked at this and at subsequent periods, that the transient visitors from the surrounding country, were more obnoxious to this disease than those who permanently resided in this city, provided they visited certain portions of the town. And if we can trust to observation, the fact of a person "not being liable to a second attack," was confirmed by the subsequent visitation of this terrible scourge, and which we think put the circumstance to as fair an issue as negative proof could do.

506. From these considerations, we think we are warranted in the conclusion, that "the yellow fever, and an exalted form of bilious remittent, are not one and the same disease." How far a distinction between them may lead to any practical utility, we are not at present prepared to say; but that it may at some future time, we do not hesitate to believe. At present we treat the two diseases pretty much after the same manner; differing more in the rigour of application than in the routine and nature of the agents employed.

507. This disease attacks variously; insidiously, openly, or ferociously. In this particular it differs perhaps from almost every other febrile disease—for in these, the danger is generally in proportion to the intensity of the symptoms; but yellow fever when masked under an apparently mild form, is dangerous in the extreme. In general we have remarked more instances of recovery where the disease assumed an open, severe, but tangible form, than where neither the pulse nor other symptoms betrayed the ravages the disease was making. In some cases the whole system appeared to be prostrated beyond the power of re-

* We say "almost entirely exempt from its attacks." We choose to employ this cautious language, because we could not say there was no such exception to the rule; but we can very confidently declare that we did not hear of an exception; for at this period, they had been but a very short time from St. Domingo.

action ; and death was frequently at hand, when the patient was perhaps walking the floor, or but occasionally indulging himself in his bed. We have known more than once a patient declare himself entirely free from disease, at a moment when he was without pulse* and within a very short period of dissolution. In such cases the foundation of the healthy play of every organ of the body, seems to be silently undermined ; and though slow, it is not the less certain or extensive ; indeed, every function is gradually so diminished that it cannot be recalled ; for the bane, has silently stolen to the very fountain of life, and so polluted its streams, as to render them no longer fit for the purposes of the system ; and before the enemy is suspected, the citadel is on the point of a surrender. This peculiarity, for such it is, may also serve to distinguish this formidable disease, from the highly bilious endemic fever of the West Indies, or of America.

508. Three distinct modes of attack, as we have just observed, may be observed in the yellow fever ; each of which has something peculiar to itself ; these varieties must arise from 1. The greater or less degree of concentration of the remote cause, or marsh miasma. 2. To the peculiarity of constitution. 3. Or to the nature and degree, of the exciting cause. Each of these circumstances will necessarily modify to a certain extent, the form, or force of the disease ; accordingly we find it presenting itself, 1. Where the disease rapidly runs on to dissolution, and is accompanied by black vomit—this form, has often terminated its career within three days, and never exceeding the fifth day. 2. Where the disease was without remissions ; or when they were so indistinct, as scarcely to be observed. In this form of the disease, the course is not run with so much rapidity as the first ; but for the most part the sufferings of the patient are greater—there is no perceptible attempt at crisis ; and where it terminates fatally, it is for the most part from the fifth, to the seventh day, and is not necessarily attended with black vomit.† 3. Where the paroxysms can be pretty regularly traced, or where the pe-

* In no disease with which we are acquainted, does this circumstance obtain to the same extent as in yellow fever—we have in a number of cases known this state of things to exist for many hours before death. During this period it was not unusual for the patient to be in full possession of his senses ; sometimes even without pain, or the smallest anxiety for his situation—nay, when interrogated as to his feelings, he would declare, “ he was very well, much better, or expected he would soon be well, as only a little weakness remained.” If we are correct in our observations, this more especially happened, where this disease killed without the intervention of black vomit.

† This form of the disease has been known to terminate without black vomit ; but dissection has shown that this fluid has been formed, though not rejected. It was also observed in these cases, that the inflammation of the stomach was more decided and extensive, than where black vomit had been thrown off. Was the stomach prostrated beyond the power of vomiting?

riods of exacerbation are not so entirely uncertain; but where there is stronger evidences of an inflammatory diathesis, than in either of the former; but which may rapidly change if not arrested by proper remedies, into an opposite state, and terminate either in the black, or the coffee-ground vomit—this form may terminate within five days; but if checked, it may run on to the seventh, ninth, or eleventh day.

509. The first form observes no regular period of attack, though the evening is the most common. It invades by an unusual degree of languor and debility; head-ache more or less intense; a most distressing and indescribable sensation about the region of the stomach. It is rarely preceded by severe rigour, but it is oftentimes of long continuance; it is not followed by great reaction; the heat of the body is rarely great, but is of a peculiar kind, giving the idea of *acridity* or pungency to the hand that feels it. The pulse is apparently weak,* confined, and giving the sensation of creeping. The face assumes a character and expression that belongs exclusively we believe, to this disease; the eyes are inflamed, or rather severely blood-shot, as it is called; and have a look of peculiar sadness, anxiety, and anguish; a flushing of the face of a truly characteristic hue, and of a singular tone—a reddish-brown not unlike the colour of mahogany, mixed with a lividity, especially its own. It is difficult, if not impossible, to convey an accurate idea of this appearance of the face; but so impressive are its characters that they are never forgotten, after having once been seen. So truly does it indicate yellow fever of a high grade that, we believe with people familiar with it, it would be sufficient to designate the disease. The tongue for the most part is moist, but foul; the thirst in the beginning not great, at least rarely severe. As the disease advances, the breathing is oftentimes disturbed; becomes hurried, and appears to be performed with a distress about the precordia. No remission takes place, although a trifling abatement of symptoms is observed, sometimes about ten or twelve hours from the commencement of the disease; but this is transient; and seems only a prelude to an increased severity of symptoms; for an aggravation of all that we have enumerated, immediately succeed this attempt at remission. The eye increases in sadness of expression—it is the eye of complete hopelessness—a burning sensation is now felt about the stomach, and the patient suddenly flinches from the slightest pressure being made upon it, which emphatically, locates the seat of mischief; head-ache is augment-

* This state of pulse has led to great error in prescriptions—for this “*apparently* weak pulse,” has been mistaken for an *absolutely* weak pulse; whereas it is only the “depressed pulse,” and requires a diametrically opposite treatment. This fact should be kept in mind. (See note to par. 352.)

ed, sometimes to an intense degree; the countenance becomes haggard, and of most sad expression—marks of inflammation are now more decided; the gums begin to swell and to become engorged with blood, and easily *provoked* to bleed. The condition of the tongue now is variable; sometimes moist, sometimes dry, but always, or with very few exceptions, foul or very red. Thirst either moderate or intense. Nausea, which perhaps may have existed from the beginning, is now increased; but there is rarely a steady vomiting for the first day or two, or even perhaps sometimes longer. The discharges from the stomach, when vomiting occurs, are rarely bilious; though sometimes porracious.*

510. The fluids discharged are for the most part clear, or partake simply of the colour of the liquids drank; but a change is soon perceived as the disease advances; they become thick and ropy; and have mixed with them, a dark-coloured flaky substance, which gives the first intimation that the stomach is about to yield to the force of the disease; for these flakes are part of the villous coat of this organ.† The patient now becomes restless and anxious in the extreme; he throws himself incessantly about, as if in the hope that a change of place would procure a temporary suspension of misery. He is watchful—sleep seems

* In some few instances of the mild form of this disease, bilious vomitings occurred—they for the most part afforded relief, and always decidedly marked a disease of a milder and more tractable kind, than where this did not occur—in some rare instances, a vomiting of very dark or black coloured bile accompanied the first symptoms of the disease; almost all of these recovered. Dr. Smith (a) appears to be under an error in regard to the nature of yellow fever, or rather in the order of and nature of its symptoms, when he says, “at another time the disease may seize with peculiar violence upon the organs of secretion, and especially upon those which belong to the digestive apparatus; hence the liver may suddenly pour forth an immense flow of bile, so vitiated in quality as to irritate and inflame whatever it touches, and so abundant in quantity as rapidly to diffuse itself over every part of the body, and to tinge almost every tissue and every fluid; at the same time the stomach and intestines may be involved in such acute disease that the powers of life may be exhausted in a few hours by incessant vomiting and unconquerable purging; thus may be formed another type of fever, and such a concurrence of symptoms actually occurs in the yellow fever of the West Indies.”

In this short extract several errors as regards the nature of yellow fever present themselves; first, when the liver is acted upon in an especial manner by the remote cause, it has always, (at least in this country,) marked a mild form of the disease as has just been observed; second, the yellow appearance observed in this disease appears to be attributed to the diffusion of bile—but this is not so; as neither the eyes, nor the urine betray its presence in the circulating fluids; third, we have never had occasion to observe this acrid condition of the biliary secretion, spoken of by Dr. Smith.

† We have seen these dark spots, immediately after vomiting, diffused in a large quantity of almost transparent fluids; but when suffered for a time to be at rest, they would rise and float upon the surface.

to have forsaken him; or should he chance to slumber, he is suddenly disturbed by internal disquietudes, and awakes to renewed and increased sufferings. His respiration is deep, hurried, and to appearance painful. He sighs deeply and frequently,* and is disposed to faint upon the smallest disturbance, or the slightest elevation of his head. A clammy sweat breaks out sometimes about the head and neck; which neither affords relief, nor gives a favourable prognosis.

511. The heat of the body is rarely increased; and the pulse even abates in frequency; in the commencement of the attack, the bowels are usually confined; the urine high-coloured, turbid, and in small quantity—indeed, in many instances, it seems gradually to diminish as the disease advances; so much so sometimes, as to be entirely wanting at last—where this has obtained, we do not recollect a single instance of recovery.

512. Delirium is by no means an usual symptom of yellow fever; it however occasionally presents itself; sometimes in a very mild, at other times in a most ferocious degree—when it does occur, it is rarely before the third day, and it may then be transient.

513. About this period, (that is, of three days,) the patient's sufferings appear to diminish, and the system to undergo an insidious change—a change, which has but too often imposed upon the inexperienced in this disease—the eye now nearly regains

* Dr. Physick has observed that the following symptoms in yellow fever were always fatal: 1st, those patients who sighed deeply immediately after waking, and before they had recovered the power of speech; 2d, those, who complained of soreness and pain, without this part having any morbid appearance; 3d, those, whose arms became rigid; and 4th, those, who had an entire *suppression* of urine. This case must not however be confounded with a *retention* of urine, as this is not a very unfrequent condition in ordinary, but strongly-marked fever—we have often seen this in the very acute remittents which had run on beyond their usual periods. This condition of the bladder has been observed by Dr. Tweedie, (Clinical Illustrations, &c. p. 32,) who says, “from an inactive state of the muscles concerned in the expulsion of the urine, accumulation in the bladder often takes place; so that in all cases of severe sensorial disturbance, the region of the bladder should be examined at each visit, as I have often seen great additional irritation arise from this cause.” On these facts he makes the following important practical remarks, to the truth of which we can ourselves bear witness. “I have known a practitioner thrown off his guard completely, by the patient passing small quantities of urine unconsciously, which not unfrequently happens when the bladder is over-distended. Appropriate measures should be adopted before such an accumulation takes place, as it not only proves a source of distress, but the sudden removal of so large a quantity by the catheter, in the advanced stages of fever, is sometimes followed by an alarming collapse, from which it is not easy to rouse the patient.” And he might have added, that even sudden death has followed this operation from a destruction of the bladder itself. It may be useful in forming a prognosis in fever, that *suppression* of urine is much more dangerous than a *retention*, as the former rarely occurs but in cases of high cerebral irritation.

its accustomed brightness, and the countenance assumes its usual cheerfulness and serenity; but the practised observer is but too well acquainted with the treachery of these appearances; he observes a yellowness spread itself over the body and neck, which too emphatically bespeaks a fatal issue to the disease. The fever and external heat now subside; the pulse even becomes fuller, and slower; and were the wrist presented for the examination of one unacquainted with the other circumstances connected with the case, he would most probably declare it to be in a natural state.

514. The skin is dry, and of a peculiar feel; a roughness or harshness possesses it, that would seem to declare that sweating was not one of its functions—the gums increase in intensity of colour, become spongy, and occasionally bleed—the vomiting is more troublesome, and continues to show still more decidedly, that the villous coat is separating; the distress at stomach is renewed with augmented force; and the patient discovers the utmost misery and wretchedness. This state of things may remain for one, two, or even three days, without much alleviation or change—but at the end of this time, without a favourable alteration take place, the heat of the body, and especially that of the extremities, is found to be dissipated; the pulse is either almost, strictly speaking, natural, or is slow and regular—the yellowness increases—the anxiety becomes extreme and inexpressible—the vomiting is now indomitable; and the long looked for, and terrible black vomit, at last appears.

515. There are shades of colour in this black discharge, depending chiefly, we believe, on the speed with which this disease runs its course—when its progress is rapid, the matter of the vomit will be very black, and resemble a strong mixture of soot and water; when less so, it will appear like the grounds of coffee; and when still slower, the black will be less intense, or consist sometimes of merely dark-coloured mucous flakes. When these flakes appear early in the disease, it always presages a severe one; and they always increase when the disease is making a fatal, or even a highly dangerous progress. Blood is sometimes found with the fluids thrown from the stomach, which may proceed either from the stomach itself, or from the throat or gums. At times, the quantity of fluid vomited is truly surprising, and would appear much to exceed that taken down; and towards the close of the disease it seems to be ejected almost without effort. This discharge seems to bring some relief for a moment; but it is very transitory; for the stomach is obliged again to empty itself, so soon as it is again distended. The stomach appears at this time too much prostrated to experience the sensation of nausea—at least we have known patients declare they were not

sick at stomach, the moment before they would vomit. There is almost always a "*vomiting of wind*,"* before black vomit makes its appearance—this we believe to be owing to the extrication or secretion of gas within the stomach, which by distending it, causes an effort similar to vomiting. We have almost invariably observed the disease to terminate in black vomit, or fatally, where this symptom has been present. It is a most distressing condition of the stomach, and evidences a severe inflammation of this organ.

516. At this stage of the disease, that is, at the time when black vomit is about to appear, the bowels almost always become loose; the evacuations are tenacious, and much resemble tar, both in colour and consistency. In our early acquaintance with this disease in our city, this appearance of the stools was by some considered favourable; it looked like getting rid of a highly irritating and offensive matter, for the removal of which, purging was immediately instituted; and the patient sometimes expired, under the operation.

517. The gums are now extremely soft, and discharge, or rather there oozes from them blood, which has lost the power of coagulation; this oozing, however, is not always confined to the gums; the nose, ears, arms, and various other parts of the body, sometimes participate in it. Sordes now encrust the teeth; the pulse may either cease altogether, or become so frequent and feeble, as scarcely to be counted; a low muttering delirium, coma, or convulsion, may close the scene.

518. We have endeavoured in the history of the symptoms of yellow fever, to give an account of its ordinary march, to a fatal issue, where the disease was allowed to run its own course. We do not pretend to enumerate all the symptoms which may occur, as they will necessarily be modified by contingencies. We trust we have kept pretty faithfully to the order of progress; though we are sensible they do not invariably observe the same succession—for instance, we have known the black vomit precede the *general* diffusion of yellowness—but we have just observed such cases are rare; and even when they do occur, a tinge of yellow about the corners of the mouth and neck may be observed, before the vomiting of black matter comes on, if they be carefully observed in a strong light; and as far as our observations have extended, they mark the approach of the event as decidedly, as when the diffusion is more general—especially, if the skin of the forehead be tinged; is drawn tightly over the frontal bone; and

* This may appear an awkward expression, but it is truly characteristic, and exist as a fact; for the stomach discharges at this time a considerable quantity of gas, (the nature of which we believe has never been ascertained,) by the same mechanism it does fluids or solids upon other occasions.

is shining. Again we have seen an increase of restlessness after black vomit has commenced, though it is generally the reverse, &c.

519. It may not be amiss to remark here, that fatal as the symptom of black vomit is, it is not invariably so—as we have seen more than one instance of recovery after this had taken place; this has been more frequently witnessed in children than in adults. Bleeding from various parts of the body is also a terrible symptom; but instances of recovery from this have much more frequently occurred than from black vomit—indeed, in several instances in the fever of 1798, it appeared useful; at least there was from the moment of its taking place an evident amendment, and finally recovery. The recoveries after the black vomit are both rare, and slow—the abatement of the puking is gradual; the black matter ceases to be thrown up, but the stomach continues to dislodge other matters from it for some time; and a long period before this organ recovers its tone—in one instance which we witnessed, more than three months elapsed before it could bear the ordinary food of the table. The patient being many hours without pulse, is not necessarily a fatal symptom; we have seen instances of recovery where this had obtained.

Treatment.

520. Having thus given as condensed a history of yellow fever as we were capable, we shall proceed to consider the method of cure. In doing so we must remark, that this disease in a most especial manner calls, not only for appropriate remedies, but also for the most prompt application of them. And we have authority to say, that where the patient does not delay too long before he seeks advice, that it is a manageable disease, in more instances than is generally supposed. But to render it so, no time must be lost—it must be instantly subjected to a rigorous discipline; or it soon becomes so intractable, as to bid defiance to every attempt at subjugation. We have noticed three different forms under which this disease presents itself; this however will not embarrass the method of cure; as each of these is virtually the same disease, and require almost the same remedies—the difference consisting chiefly in the extent to which the remedies must be carried, rather than a difference in the remedies themselves. In the first form there is more likelihood of error than in the other two; and which if committed, will at once seal the patient's doom.

521. In our description of this form, we noticed two circumstances, which we here repeat, that they may not be lost sight

of: 1st, the appearance of weakness in the pulse;* 2d, the disease not being ushered in by a regular chill; but rather a coldness of long continuance sometimes, and which is not followed by violent reaction. From the two circumstances just stated obtaining in this form, a wrong conclusion has been drawn as to the state of the system; and stimulants unfortunately have been employed; or if not, proper depletion had not been resorted to. We must not therefore be deceived by this marked state of the pulse, and make us employ improper remedies; for these must consist of bleeding and purging, and powerfully exciting the skin, when its temperature is below the natural standard—this is best done by the application of external warmth in the usual various ways—as bottles of hot water, hot bricks, warm blankets, sinapisms, &c. This is a congestive state.

522. The patient should be supported during the chilly state, by artificial heat applied to his body, by means of heated blankets, &c. as just stated, until the system begins to react; the warm bath, when practicable, and when it will not occasion too much delay, may be advantageously employed—a vein should then be opened, and as much blood taken as the patient can well spare at the moment—the quantity should be very much regulated by the effects—that is, where a few ounces have been lost, and the pulse is found to rise and become more active, we should permit the blood to flow until a decided reduction is made of its lately acquired force—or, until it becomes really feeble, or there is a regular abatement of symptoms. If the pain attending the disease, especially head-ache, be very severe, we sometimes shall find it relieved in proportion to the flowing of the blood. But if he have an obscure head-ache with very red eyes, with this depressed state of the pulse, it is very possible, we shall convert a dull obtuse pain into a very acute one. This change was far from being unusual in the yellow fevers which visited Philadelphia in the various years in which it made its appearance. And in 1793, especially, it had an unfavourable effect upon the public mind; for it made it hostile to depleting remedies—this prejudice was however but transitory; it yielded as soon as the cause was understood.

* We have before remarked, that the pulse of this form of yellow fever is what we have termed upon good authority, the oppressed or depressed pulse; a condition of the artery which requires depletion even more certainly than the strong, full pulse. It requires however to be understood; we have attempted an explanation in note to par. 352. This pulse is sure to be converted by depletion, into the strong, full pulse, in a few minutes; hence we have directed, that after this ensues, the abstraction of blood must be continued, until the force of the artery is *positively* weak; for it was only *relatively* so before. This kind of pulse is felt in apoplexy, and in phlogosis of the lungs; or sometimes even in violent fits of asthma.

523. We have noticed, that the bleeding would very often procure an abatement of the most distressing symptoms, when early resorted to, and sufficiently employed; nor was this all; it also disposed the disease to assume a greater regularity of paroxysm; or in other words, procured a disposition to remission; and although there was not much regularity in the accessions, still they were sufficiently marked, as to lead to the hope, of converting this disease into one of more regular type, and of milder grade—and this sometimes very early took place. It was therefore, always looked upon as favourable, where there was strong exacerbations, with decided remissions, after the depressed state with which it commenced. In this form the disease was more palpable, and open; and although it would require the use of the lancet many times, before it could be subdued, yet it was in a form that was much more manageable, than where the bleeding and other remedies failed to give the disease this new character.

524. Where bleeding failed to give immediate, though temporary relief, or to unload the system so that it could pretty freely react, the disease scarcely ever failed to run its course in a short time in spite of every other attempt at opposition. The stomach would soon give way; and death be ushered in by black vomit. Some of the West India practitioners, especially Jackson, carried bleeding to a much greater extent than has been ventured upon in this country—he almost always bled to fainting, when he saw the patient after the first, six or eight hours after the attack, and as he declares, with the most happy and decided advantage. In directing bleeding in the form of the disease under consideration, we must be understood as having in view, its commencement—as for the most part, if the patient had been ill for twenty-four, or thirty hours, it was truly a forlorn hope to attack it. For after this period the debility and disorganization become so decided, and irreclaimable, that every effort to arrest their further progress was totally unavailing. It is vain we give tonics, or urge stimulants; they both, indeed appear but to hasten the catastrophe.

525. After taking as much blood as the state of the system will justify, or the exigency of the existing symptoms require, we are strictly to put in use all the rules we have laid down for the general management of fever; for in no kind are they more necessary or decidedly useful, than in this. We must next pay attention to the state of the bowels; we have said that for the most part they are costive or tardy in this disease—we should select for exhibition the most certain of the purgatives; and they should be exhibited in divided doses, rather than in large ones. In this way they are not only more certain, but also less offensive.

Calomel* in form of pills is perhaps the least exceptionable, and of the most decided efficacy—should they fail after a few hours, of procuring copious evacuations, they may be followed by castor oil, or calcined magnesia, drinking after it lemonade; or magnesia and Epsom salt may be given, until the effect be produced; and these may very often be advantageously aided by stimulating injections.† It must be remarked, we are not to be deterred from giving purgatives because a moderate sickness of stomach may accompany the disease; for should we yield even for a few hours to this symptom, we should have the mortification of seeing it augment without the advantage of having the purgative in possession of the bowels—we have rarely found the nausea of this disease increased by these medicines. The only difference we would advise, is, the use of the calomel alone in grain doses, aided by repeated injections.

526. When the bowels are freely purged, we may desist from large doses of medicine; but we must be careful to maintain the operation by occasional exhibitions of it—for this purpose a pill of calomel may be given once in four or six hours; or small doses of castor oil, with great benefit. Upon bleeding, and a lax condition of the bowels, we must place our chief reliance; and they must be employed whenever the system either reacts in form of regular paroxysms, or in occasional exacerbations. We must not limit the time of repetition of this remedy by its use in ordinary diseases; we must be governed by the violence of symptoms, and by the period in which the fever runs its course—the procrastination of even a single hour, may have important consequences attached to it. We, therefore, bleed whenever the symptoms increase in violence, (other things being equal,) if that be every few hours—we well remember giving our friend Dr. Physick twenty-three bleedings in five days with the happiest effect. And we have witnessed where the blood first drawn was dissolved,‡ yet the subsequent bleedings showed decided marks

* R. Calomel ppt.	- - - - -	gr. x.	Take Calomel, - - - - - 10 grains.
Conserv. rosar.	- - - - -	q. s.	
M. f. pil. iij.			
One of these to be taken every hour.			Conserve of roses, sufficient to make three pills.

† One of the simplest and best we believe at this time, is, a pint of luke-warm water, and a large table-spoonful of common salt. Should this fail in operating for twenty minutes, it may be repeated.

‡ Dissolved blood, is that condition of this fluid, in which no separation of its constituent parts take place; and where the coagulating lymph has lost its power of coagulation. The whole mass after standing for some hours can be poured from one vessel into another, like thick molasses. This state of the blood was looked upon by Dr. Rush as a mark of the highest inflammation to which the system could go, without being in a state of gangrene. If this observation be confined to the early part of this disease, we have reason to be-

of inflammation. One instance is still fresh in our memory, where six ounces of dissolved blood were drawn at the first bleeding, on the first day of the disease; yet after this the system reacted so powerfully, as to require twelve more bleedings to tranquillize it; the patient recovered rapidly.

527. We must not be deterred from the employment of depleting remedies by the semblance of weakness—it is a most fallacious sign; and where it has been respected in the commencement of the disease, it has been the death of thousands. There is great debility in yellow fever; the patient is wont to faint early in the attack, when disturbed, or placed in an erect position; but this, instead of forbidding bleeding, calls loudly for it—we have very many times witnessed the patient strengthened by the loss of a large quantity of blood, and free purging. So long then as the pulse is either depressed and tense, preternaturally firm and slow, or very active and corded, we are imperiously called upon to deplete. In the first instance, the pulse will rise, and be invigorated; in the second, it will increase in frequency, and become softer; and in the third, it will become less quick, and more open. There is something remarkable in the strong tendency which this disease has to disorganization when permitted to run its course, which we have said was from three to five days—it marks the highest grade of inflammatory action; and which, if not subdued by prompt and appropriate remedies, will end most speedily in death. The employment of proper evacuations will almost always protract the hour of dissolution; by which means we are sometimes enabled to gain a victory over the disease—for if it moderate in violence, we have a greater opportunity afforded us, to yield the needed succour. While, on the contrary, if the patient has been entirely neglected, or what is worse, if he has been treated with cordial or stimulating remedies, he has rarely lived to see the fifth day, and very often has expired on the third.

528. If it have so happened that a day, or two at furthest, has been lost to the application of remedies, we very rarely, (in this form of the disease,) have it in our power to retrieve them—but, although the chance of success is very slender, the patient must not be abandoned. We are, however, persuaded, that even here the same kind of remedies are necessary, though in a much less active, or extensive degree; very small bleedings, with gentle purging, have succeeded sometimes when the system

lieve his observation correct, as the case alluded to in the text, seems to confirm. But it must not always be regarded as a sign, that blood-letting is the proper remedy in the disease in which it may appear; for in the last stages of yellow fever, the blood will exhibit the same phenomenon; and also in scurvy.

seemed fast hurrying to dissolution. We should, therefore, employ them as long as there is the least vigour in the arterial system, only proportioning the quantity of the bleeding, and the extent of the purging to the existing state of the system. Sometimes two or three ounces of blood have been drawn with evident advantage; and this has several times been repeated at two, three, or four hours interval, until the system has reacted with renewed force, and the patient has escaped from death, by these small, and well-timed bleedings—what led to this practice was observing recoveries, after hæmorrhages from various parts of the body, had taken place.

529. Although the pathology of this disease, was in part understood in 1793, and clearly in 1798, yet it did not lead to the free use of leeches. The numerous post mortem examinations made by Dr. Physick in the Yellow Fever Hospital, at Bush-hill in 1793, and at the City Hospital in 1798, convinced almost every body, that a high grade of inflammation of the mucous membrane of the stomach, was the true cause of the disease. Hence the almost universal employment of the lancet, and of purging in this complaint. Notwithstanding the importance of these facts, and the general truth of the indications they led to, we had yet to learn, that many of the remedies employed to fulfil them, tended rather to aggravate, than to abate the inflammation of the stomach; such for instance, as all the very active, or rather drastic purgatives, so liberally employed; but more especially, the directly stimulating articles resorted to by some, under the impression it was a form of typhus, and required bark, wine, ammonia, &c. &c.

530. But we may here ask if this practice be not adopted, to what shall we have recourse? There are but two other choices, either to do nothing, or what is still more decidedly mischievous, to stimulate with wine, brandy, or volatile alkali. External stimuli may be advantageously used, however, at this period; one of the best of these is heat—this may be applied in various ways—by warmed articles of covering, heated bricks, jugs or bottles of warm water, &c.—sinapisms to the feet and ankles,* legs wrapped in flannels wetted with warm spirit of turpentine, &c.

531. We are of opinion, (which however we confess to have derived only from analogy,) that the occasional loss of a few ounces of blood from the region of the stomach by leeches, would be of the most prompt and extensive benefit. The cutting

* In the use of these articles great care should be taken, that they do not remain on the part longer than to exert a rubefacient effect. For if permitted to stay too long, a gangrene of the part may ensue.

short of the paroxysms of the remittent form of fever by leeching over the stomach, which almost amounts to certainty, leads us to the persuasion, that it would be as useful in yellow fever; especially, when as large draughts of blood had been made from the general system, as it would well bear; or where the disease had been neglected, and the abstraction of blood from the arm might be thought ineligible; or where it presented itself in a milder form. After this we might blister over the stomach, or what is as effectual, and more prompt, a plaster composed of ground mustard and spirit of turpentine; this must be permitted to remain, until the patient complain of the intensity of its action. The bowels must be evacuated by mild purgatives, as castor oil, weak solution of Epsom salt, or magnesia in milk—these to be aided by injections.

532. As the stomach is very frequently sick in the early part of the disease, care should be taken not to increase it by the exhibition of improper articles—all stimulating teas should be avoided; as that of mint, ginger, or chamomile; in general, the surest relief is obtained, by not allowing the patient to fill his stomach with any fluid—cold water, one of the best drinks, is rejected very often with great violence, when given in a large quantity; it should therefore be given by the spoonful—indeed, any very cold drink seems to disagree with the patient, if given too freely, or in too great quantities; while tepid or lukewarm, will be retained. Ice swallowed in small portions, is very acceptable. Yet we found nothing so uniformly agree with the stomach as a pretty strong solution of gum Arabic in water in small quantities at a time; small quantities of milk and water, frequently repeated; rich toast tea; or lime water and milk.

533. When head-ache is severe, cold applications have been found very serviceable; they may be frequently renewed, or permanently maintained on the head.* The best mode of conducting this is by filling a large bladder two-thirds full with cold water, to which, if necessary, a lump of ice may be added—the bladder is then tied and placed on the head—should the hair be thick, it may be best to thin it, or to cut it off. Should there be great heat of skin, which is sometimes the case even in this form of the disease, especially, after depletion has been freely employed; and the fever is assuming a more regular form, great comfort as well as advantage is found from sponging the body and arms, with cold water; or should there be great sensibility of skin, or cough, with tepid water. And we have seen in this

* The benefit of this valuable application is oftentimes destroyed, by not having it properly employed. It is almost always kept too long at a time upon the head, whereas, it should be removed as soon as the head becomes *cold*; and only renewed, when the head becomes again hot, or the pain severe.

state of the system much benefit, from having the hands of the patient kept in basons of cold water, until their temperature has been well reduced by it—this can be repeated as the occasion may require—by this process, indeed, the heat of the whole body appears to be reduced.

534. In the other two forms of the disease which we have noticed, the plan of cure is so conformable to the first, that we need not enter into a detailed account of it—we must, however, observe, that like the former, almost every thing depends upon the promptitude with which the remedies are employed. In the second form the alleviation of the symptoms is more manifest, than in the first, that is, it is easier to procure remissions—the heat of the skin is in general more intense, and the patient bears bleeding and other depleting remedies better than in the first; and when an impression is made upon the disease it is more easily maintained—the disease may be protracted until the seventh, ninth, or eleventh day, or even longer, and may at these advanced periods terminate by a regular crisis, or in death. In this form the good effects of cool air, sponging, and the application of cold water to the hands and head, are more evident than in the former. The stomach does not yield so soon; and the issue by black vomit, is either longer protracted, or does not take place, though death may ensue. This form also requires more extensive purging; and the evacuations are frequently bilious. Hæmorrhages are not so frequent.

535. In the third form we have said, the inflammatory symptoms are evident; that is, there is considerable heat of skin, strong, firm, full pulse, flushed face, red eyes, tongue white and furred, and great soreness over the region of the stomach when pressed; more certainty in the periods of exacerbation, or more distinct remissions. This form seems more open and of easier management than the two former, and resembles more the high grade of a regular bilious remittent. But if the first two or three paroxysms be allowed to pass without opposition, the system may be prostrated—the pulse becomes slower, softer, and weaker—the blood seems to retire from the surface—the body becomes cool and pale; the face assumes a leaden hue; the eyes remain injected, with also a strong tinge of yellow; the tongue dry and brown; the stomach sick and disposed to vomit; the matters thrown up have the dark mucous flakes mixed with them; hic-cough, cold extremities, and black vomit—the bowels become loose, and the evacuations are sometimes passed involuntarily—coma, and slight delirium. Notwithstanding this terrible train of symptoms, the disease runs a longer course than the two former—and although the tendency to disorganization is equally to

be apprehended, it is not equally rapid—the inflammation which attends, is not so excessive though more evident and palpable; and the system seems to lose its powers more from excessive action, than from a higher degree of inflammation suddenly ending in gangrene.

536. When proper depletion is employed early in this form, it is sometimes changed into a regular remittent, and sometimes ends in an intermittent.* The same remedies must be employed in this, as in the other forms; but with these differences; bleeding and purging not to be carried to the same extent, though indispensably necessary—a much smaller quantity of blood will diminish the force of the circulation; but the reaction after it, is more prompt and certain. Emetics and sweating have been sometimes advantageously employed after due depletion about the third or fourth day, where the stomach would reject its contents mixed with bile; and blisters have a decidedly good effect in removing the disposition to coma, and relieving delirium; they should be applied first to the legs, and then a large one to the nape of the neck, and extend down between the shoulders.

537. Should the inflammatory stage pass over without an attempt to moderate it, the system becomes so prostrated that nothing can again invigorate it—it must be left, like a wreck, pretty much to the mercy of the wind and waves that have overwhelmed it—it may float to shore, but it cannot be navigated there.

538. We may, however, in this, as well as the two other forms, alleviate certain symptoms; or so controul them, that they shall be less mischievous—the nausea may sometimes be relieved by the Seltzer or soda-water, or by the effervescing mixture—by lime-water and milk; and in the last stage, even where black vomit is present, the spirit of turpentine has been successfully employed—a strong infusion of cloves has also been used with advantage in the severe vomitings that take place in the decline of the system—a blister over the stomach may also be useful. A distressing hiccough sometimes attends; this has been found to yield best to large doses of camphor. Should a weakening diarrhoea supervene, the chalk julep or very strong allspice tea should be given until it be sufficiently restrained.

539. Porter and water after the inflammatory symptoms have

* This last change only takes place in the later part of the season, after the weather becomes cooler. That is, it has happened pretty late in the fall, to see this change; but whether these cases were genuine cases of yellow fever may be doubted. For when this disease is epidemic, every fever in the vicinity of its visitation is thought to be yellow fever; yet the circumstance is noted by most modern writers upon tropical diseases.

yielded to remedies or passed away, has almost always been found a most grateful beverage, as well as being very often successful in quieting nausea or arresting vomiting.

540. We may here remark that, as the season advances this disease bears more bleeding than in the very hot weather; or in other words, the phlogosis of the stomach is less rapid in its progress to disorganization. The extreme fatality of this disease, together with the popular belief, that it is propagated by contagion, has justly rendered it a terror, as well as a scourge, wherever it may present itself. Yet, notwithstanding its great mortality, it does not appear to be more formidable than the fever treated at the London Fever Hospital, if Dr. Tweedie's* tabular exhibit, be correct. He says, that in 1829, ending on the 1st Sept. of that year, five hundred and twenty-one patients were admitted; of which, four hundred and forty-five were cured—three turned over to the small-pox hospital—and seventy-three died. Agreeably to this statement, one in every seven died; and this in the common continued form of fever; but when this fever was complicated with pulmonic inflammation, "*about one-third died.*" Now, we believe that in no one instance of the epidemic yellow fever, was the proportion of deaths greater than even these average losses of the London Fever Hospital.

CHAPTER II.

RUBEOLA, OR MEASLES.

541. This disease occurs for the most part in winter and in the spring; at least its appearance is much more frequent at these periods, than at other portions of the year. It may however prove epidemic, in the summer.

542. This disease is evidently influenced by the state of the weather; it is more moderate in mild, than in severe weather.

543. It is the opinion of some, that measles is regular in its recurrence as an epidemic; the interval is said to be seven years. Whether this is rigidly the case, we are not prepared from present data to decide; it is, however, rendered probable, that there is either a regular return at this period, or at least, an approximation to it. It is said to be contagious; but this may be pretty fairly disputed, notwithstanding the imposing experiments of

* Clinical Illustrations of Fever, &c. By Alexander Tweedie, M. D.

Dr. Home, who declared he propagated the disease by inoculation. An Italian physician, (Speranza,) declares he has succeeded in an attempt at inoculation by puncturing a full measles with a lancet, and inserting the blood that was yielded by the puncture; he declares he was successful in six cases. On the other hand, Dr. Chapman, (MS. Lectures,) says, upon this point, that "experiments of this nature were instituted in the practice of our Dispensary in 1801; in which the blood, the tears, the mucus of the nostrils, bronchia, the eruptive matter in the cuticle properly moistened, were all tried, and without success in any one instance."*

544. Neither is it settled whether the constitution can be made to suffer the rubeolus action a second time; evidence is so entirely contradictory on this point, that it would not be safe to draw a positive conclusion, either in favour, or against it. One thing we may however safely declare, that if it be taken a second time, it is contrary to the ordinary character of this disease;† or in other words, it is but an exception to the general rule, as regards several of the diseases which propagate themselves by specific contagion, as small-pox, cow-pox, whooping-cough, chicken-pox, &c. For it is now well ascertained, that exceptions do occur; we have ourselves known each of the diseases just enumerated, repeated and seemingly so unequivocally, as to leave no doubts in our minds upon the subject.

545. The measles are ushered in like other febrile affections, by chilliness, languor, oppression, heat, and thirst, especially the first day; these terminate in a perfectly well-formed fever. Sometimes sickness, and even vomiting attend.‡ The fever is

* Dr. Tourtual, a Dutch physician, states that when the measles were epidemic, all the children that were under treatment with sulphur for itch escaped the disease; and that those who were taking sulphur for the cure of whooping-cough enjoyed the same immunity. Finally, he says that many children to whom was given a mixture of camphor and sulphur, and to whom these medicaments were applied by friction, were not attacked with measles, while those not subjected to this medication were affected.—*Amer. Journ. of Med. Sciences for May, 1832.*

† There is a variety of this disease, however, which affords no protection against the genuine measles; this is called the French measles, or the rubeola sine catarrho. Dr. Gregory says this is "a very rare variety, and only interesting in a pathological point of view." We have had several opportunities to see this form of measles. Dr. Hosack witnessed it in 1813 in New York. It has never required any active treatment as far as we have observed.

‡ The measles of this season, (early in 1832,) have been attended with more nausea and vomiting, than is usual in this disease. The disease, as far as I have seen, and I have witnessed many cases, has been remarkably mild—the pectoral symptoms comparatively light; the fever slight, and the eruption less abundant than common. It may however be proper to add, that the fever was more protracted than ordinary, but before the eruption would make its appearance; it continued longer, though milder than it is wont to do after this had taken place.

pretty high from its first assault, but not regularly so; as it occasionally seems to augment for two or three days; and then becomes very considerable at the time the eruption makes its appearance upon the skin, which usually is not before the fourth day. We have seen the eruption take place with but very little fever. Cough, a little hoarseness, slight sore throat, pain in the chest, and difficulty of breathing, are the usual attendants upon this disease. The eyes are particularly affected; they are always slightly inflamed, and the lids a little swelled; and these symptoms are attended by a plentiful secretion of scalding tears. Sydenham looks upon these symptoms as marking with much certainty, the approach of the measles. The discharge from the nostrils is also abundant; and sometimes it is acrid. Sneezing is almost a never-failing attendant upon this complaint.

546. The eruption almost always occupies the face and neck before it is observed elsewhere; it, however, for the most part spreads itself successively over the whole body. But should this not occur strictly, and the eruption show itself in "large red spots, not rising above the surface;" it may, nevertheless, be a genuine measles.*

547. This eruption is mostly very florid; and it retains this colour for the first three or four days; after this time it becomes brownish, and then gradually vanishes, and is followed by a desquamation of the cuticle. "These red spots are composed," agreeably to the same author, "of small red pimples seated near each other, and rising a little higher than the surface of the skin, so that they may be felt upon pressing them lightly with the finger, though they can scarcely be seen."†

548. The eruption does not much abate the severity of the fever; at least the heat of the skin remains equally great; especially that of the head and neck, both of which have a look of greater fulness than natural. Sometimes, however, an abatement of fever may be observed after the completion of the eruption; but for the most part it does not entirely cease until the cuticle is cast off. The vomiting which usually accompanies, or ushers in the disease, almost always ceases at this period; but the fever and cough seem rather to augment, and is very frequently accompanied with drowsiness.

549. We have said cough was an attendant upon this complaint; indeed it may be said to be of never-failing occurrence. It is in the commencement dry, frequent, and sometimes painful; but as the fever declines, it becomes more open, and oftentimes the expectoration is even great. Pneumonic symptoms very frequently attend measles; and sometimes this disease,

* Sydenham, Vol. I. p. 257.

† Ibid.

when epidemic, is characterized by this tendency. We remember it to have been epidemic early in the spring of 1785 or 1786, at which time almost every case was marked by pneumonic symptoms of great violence. That epidemic was of difficult management; it ran its course with unusual rapidity, and not unfrequently terminated in death; and in all instances almost, the cough was severe, obstinate, and of very long duration. Indeed, in many cases it yielded but to the genial heat of advancing spring, or to that of summer.

550. The only disease with which measles can well be confounded, is scarlatina; yet it is pretty easily distinguished from it by attending to the characters of each. The sneezing, the watery eyes, the severe cough, the pneumonic tendencies, all serve to distinguish the measles from scarlatina. Besides, in measles there is less swelling in the skin; the redness is not so uniform, nor is the tone of colour precisely the same. In scarlatina, the tone of colour on the skin is much more vivid than in measles, and seems to lay beneath the cuticle—and is truly a scarlet colour. In measles the eruption has a mixture of the modena with the scarlet; that is, it has a shade of purple. Besides, in measles there is a little roughness to be perceived if the hand be slowly passed over the skin that is occupied by eruption; which is not the case generally, indeed very rarely, with scarlatina.

551. In measles, the eyes are much more sensible to light, and are very much more tearful than in scarlatina; nor are the fauces so much affected in the former, as in the latter disease. Indeed, we have seen many cases of genuine measles, without the throat being at all affected, which rarely happens with scarlatina. In measles, there is less certainty of a desquamation of the skin; in truth, in the former, it is more a branny scurf than a true desquamation.

552. As regards the prognosis, it may be observed, that this disease is dangerous in proportion as the head, the lungs, and the stomach may be affected. And in habits disposed to consumption, it is always bad, at least it is always to be feared.

553. Much fever without a corresponding quantity of eruption, or the latter making its appearance reluctantly, or of a pale or livid colour, is always a bad sign; and is usually attributed to a want of vigour in the constitution; but this is not so without exception, or perhaps it is very rarely the case. We shall again advert to this condition presently.

554. The abrupt disappearance of the eruption, or its becoming pale, is unfavourable; especially on the first day or two of the eruption; or if it be attended by severe vomiting, a great tenderness of the epigastrium, or a diarrhœa. Should none of

these untoward symptoms take place, the case will most probably terminate propitiously. But we must be upon our guard not to mistake the ordinary progress of the disease for a retrocession of the eruption. For, as the disease usually runs its course in eight or nine days, the eruption is observed to disappear pretty generally at this time; and by the ignorant, is supposed to have taken place much too soon, and with a view of maintaining it upon the skin, stimulating drinks and medicine are freely exhibited; the patient is covered warm from head to foot, and every avenue for air is carefully shut up. In consequence of such treatment, the patient is thrown suddenly into imminent danger; fever is rekindled, cough and other pneumonic symptoms increase, and the eruption assumes a livid or black hue, and if not relieved soon by proper treatment, the patient quickly dies.

555. Death, when it happens, however, takes place in measles at different periods in the progress of the disease, which produces a difference in the phenomena observable in examinations; thus it has been known to prove fatal as early as the fourth day. When this event takes place so early, it is generally attributed to the "striking in" of the eruption; but this is not the case, were we to adopt even the popular language upon this subject; for when a disease leaves the skin, or more properly speaking, when it is no longer maintained there, it is not because it has changed its seat, but because some portion of the mucous membrane may be too powerfully affected by an efflorescence similar in its nature to that which occupied the skin.

556. In this case, the peculiar action, or inflammation constituting measles, so far transcends its ordinary degree, as to destroy its peculiarity of action in either the mucous membrane of the bronchia, or of the stomach, or intestines; and consequently the peculiar sympathy of the skin which gave rise to the eruption upon its surface, could no longer be maintained; because the specific action on other parts, and from which the sympathy arose, no longer existed, in consequence of the inordinate or altered action in the original seat of irritation. The same thing occurs in variola.

557. In these cases, when pneumonic symptoms are severe, it would seem that the mucous membrane of the trachea, bronchia, and air cells, are found highly inflamed, and not unfrequently filled with mucous and bloody serum; this is especially the case when the patient dies in the early stage of the disease. In the later stages, ulcerations of the parts have been observed. In measles, the inflammation of the bronchial membrane has a strong resemblance to the efflorescence on the skin; that is, it exists in detached semicircles.

558. Measles seems to be more decidedly attended by that condition of the system called inflammatory, than almost any other of the eruptive diseases; or, in other words, its epidemic character is more frequently inflammatory than otherwise. There are exceptions of course, imposed by constitution, and season of the year; but above all, by the epidemic peculiarity of the atmosphere; hence it is sometimes highly inflammatory, requiring the most active evacuations and extensive depletion by blood-letting, &c. to keep it in controul. While again it may have a highly malignant character, and for the relief of which we must have recourse to the opposite means.

559. Sydenham, however, did not order bleeding in the beginning, nor even at the height of the disease, though so fond of this remedy, under almost every circumstance at other periods of the disease.

560. This, in our opinion, shows how discriminating this great man was—for he would not prescribe for the name of the disease; the epidemic of 1670 does not appear to have been highly inflammatory; as a strict antiphlogistic regimen with demulcents, he informs us, “seldom failed to cure the disease.”

561. Therefore, regard must be had to the character the measles assumes; and they must be treated accordingly—if fever be high, cough and oppression severe, blood should be drawn immediately, though these symptoms occur at rather an uncommon period of the disease, namely, in its forming stage; for such changes may be imposed upon the character of measles by some constitutions of the air, or other cause, as render this at times absolutely necessary.

562. From this view of the constitutional differences of measles, it will at once appear, that its treatment must vary according to its specific character; or its form may be so mild as to require no medical treatment. We have not been under the necessity of bleeding but twice this season for this disease, though we have prescribed for more than one hundred up to this time, (April, 1829,) so mild has the character of the measles been.*

563. In attacks of severity, especially where much cough, oppression, or pain in the chest attend, the first remedy we can probably use with advantage, is blood-letting; the quantity must be regulated by the age of the child, the force of disease, and the immediate effect of the remedy. It must however, be remarked, that in measles, though we are obliged to repeat this operation; it rarely requires large quantities to be drawn at a time; and the

* This season, (1832,) we have not had occasion to draw blood but once, and in this instance the necessity of bleeding was created by excessive exposure to cold during the febrile stage of the disease.

repetition must be governed by the state of the pulse, and continuance of the violent symptoms.

564. Much objection is made to bleeding in the measles by some; this fear is without foundation in most cases of this complaint; for as a general rule we may declare, there are few diseases which more decidedly require this remedy; for there are few in which the lungs are so seriously implicated. Under the best management, it is but too apt to leave a troublesome and obstinate cough; but this is sure to be the case, if not augmented, if blood-letting have not been performed where the case required it; and we may most safely add, that this but too frequently happens, since this operation is but too often proscribed. It is true, if we are to believe authors, that now and then, the character of this epidemic is such as to *forbid* in almost every case, blood-letting; but this is only the exception to the rule.* And we are disposed to believe, that these exceptions in many instances were imaginary, or rather that the true mode of treatment has been ill understood. Sydenham appears to be authority for this belief; for we are of opinion, that few would have bled under the circumstances, he declares he found the maid servant, of "lady Anne Barrington, who had the measles, joined with fever, difficulty of breathing, *purple spots over the whole body* and many other dangerous symptoms, all of which" says he "I ascribed to the hot regimen and medicines which had been too freely used. I directed bleeding in the arm, and prescribed a cooling pectoral ptisan to be taken often, by means of which, and a more cooling regimen, the purple spots and all the other symptoms went off by degrees." p. 264. Vol. I.

565. We had an opportunity in our present epidemic, (March, 1828,) of witnessing the advantage of this mode of treatment in a young woman of eighteen. She was attacked with measles, which made their appearance with great reluctance; on the day before they began to show themselves, she had been taken with her menstrual discharge—but the moment the measles began to appear her catamenia ceased. She now become very much oppressed; breathing laborious; cough almost incessant; complained much of her head; was slightly delirious; tongue loaded and very white; breath offensive; could not lie down, without a sense of suffocation; measles not abundant, but very dark-coloured, with a frequent, rapid pulse. She was bled fourteen ounces, and purged with salts and magnesia; directed to drink

* In the measles of 1832, the character of the epidemic did not forbid the use of the lancet,—the mildness of the disease only rendered this remedy unnecessary.

very freely of barley water, and to be allowed nothing beside. On our visit the following morning, we found her relieved of all her unpleasant symptoms, and the measles in plentiful quantity, and of a healthy appearance; cough nearly gone; free from all pain, and a plentiful flow of the catamenia. She recovered rapidly.

566. There are few diseases which put on a menacing appearance, that are worse treated than measles; especially when the eruption is about to take place. Should this fail to be as rapid in its evolution, or as extensive in its diffusion, as meets the views of some old woman, or an ignorant nurse, the disease is almost sure to be converted, by stimulating applications into one of danger, however simple it might have proved, had its course and tendency, been undisturbed. With a view to promote the eruption, heating teas of various kinds, and even liquors are given, to the certain injury, if not to the absolute destruction of the patient—this conduct cannot be too strongly reprobated, or too peremptorily forbidden.

567. The same error is committed almost always, where the eruption seems tardy, or reluctant in its appearance: for it is wrongly imagined, that this can only proceed from a want of force in the system; and that the efforts of nature must be seconded by heating teas of various kinds, wine whey, milk punch, &c. when nothing could have relieved the oppressed system, but blood-letting, and other evacuating remedies. And hence we are disposed to believe, this disease so frequently proves fatal. For if the pathology of the measles, now so generally assumed, be true, the cause of the eruption not appearing upon the skin may be owing to the intensity of gastric irritation, or inflammation, as we have already attempted to explain, which requires the loss of blood from the system at large, or from over the region of the stomach, by leeching or cupping.

568. In aid of the bleeding we should employ calomel, so as to freely discharge the bowels, without urging them to brisk purging. And also to prescribe a strict antiphlogistic regimen;* together with demulcent drinks, as flaxseed tea, barley water, bran tea, gum Arabic water, &c. It may also become necessary, where the pneumonic symptoms continue after bleeding, to draw blood from near the seat of the local affection by cupping; and this to be followed by a blister.

569. When the system is sufficiently reduced to bear opium in some form or other, it should be administered, so as to ap-

* We have already defined what we wish to be understood when we prescribe a strict "antiphlogistic regimen." See pars. 207 to 217.

pease the cough, which but too often is very distressing;* or we may give the denarcotized laudanum, the "black drop" or the acetated tincture of opium. Either of these should be administered at night, in combination with antimonial wine, in suitable doses—for instance; a child from two to four years of age may take three or four drops of the black drop, with ten of antimonial wine at bed time, or double this quantity of the laudanum; and should this not relieve the cough, and appease the inquietude in two hours, it may be repeated—for children more advanced, we must increase the dose a little. But a few trials of rather an under-dose will soon lead to the knowledge of the required quantity. For children under two years old, we have found the syrup of poppies to answer admirably. This may not only be given at night, but also in the day, and may most advantageously be repeated, as the necessity arises; from a small tea, to a pap-spoonful will be sufficient for a child from six months to two years old.

570. Should the character of this disease be typhoid,† the lancet must be sparingly used, and perhaps not at all, except in the beginning; but when there is great oppression, or pain in the chest, with much cough, cupping will be found both necessary and advantageous—this must for the most part be followed by blistering.

571. Emetics are also useful in this species of measles, and should be employed where there is great accumulation of phlegm, and the expectoration but inconsiderable. Mercurial purges are also to be given, even to plentiful purging. It is occasionally useful to employ the *warm* but not a hot bath; especially where the

* We have found the following mixture answer admirably well:—

R. Sperm. ceti	-	-	-	3ij.	Take of spermaceti	-	2 drachms.
Vitel ovi	-	-	-	j.	Yelk of an egg	-	1
Pulv. g. Arab.	-	-	-	3ij.	Powdered gum Ara-		
Elix. paregor.	-	-	-	3vj.	bic	-	2 drachms.
Vin. antim.	-	-	-	3ss.	Paregoric elixir	-	6 drachms.
Sacch. alb.	-	-	-	3ij.	Antimonial wine	-	4 drachms.
Aqua font.	-	-	-	3vj.	White sugar	-	3 drachms.
M.					Water	-	6 ounces.
					Mix.		

Of this a table-spoonful is to be given every two or three hours, until the cough is relieved. This dose is calculated for an adult—for children the quantity must be proportional. *Note.*—To make this mixture, the spermaceti and the yelk of the egg must be first rubbed together until well incorporated—add then the gum Arabic and the other ingredients in succession; when these are well mixed together, let the water be added gradually—keep it in a cool place.

† We are of opinion that too much care cannot be taken, not to confound what is termed a typhoid condition, with an existing inflammatory state of the system; witness the case related by Sydenham, par. 564.

character of the eruption is not sufficiently healthy; looking either too pale or livid, provided the pulse is not so active as to require bleeding.

572. Should the appearance of exhaustion supervene, we must have recourse to the diffusible stimuli, as wine whey, and the volatile alkali; and these may be aided by blisters to the extremities, or by sinapisms to the soles of the feet.

573. It is of much consequence, throughout the whole course of this disease, that the temperature of the air of the patient's chamber should be regulated, and not made to exceed sixty-four or five; sixty perhaps would be the best standard. This temperature would be warmer than would be useful for small-pox; measles however requires this; but it is never proper to keep the patient hot, either by a heated atmosphere or bed-clothes. The constant disposition to cough will readily explain, why measles requires a higher temperature than small-pox. Dr. Gregory observes that "it is well ascertained, that these, (the symptoms of thoracic inflammation,) are often aggravated by a free exposure of the body to cold, either during or previous to the eruption; and some have remarked, that this aggravation of the catarrhal symptoms, is occasionally attended by a *recession* of the eruption; moderate warmth therefore, is on all accounts advisable in measles."

574. Measles but too frequently leave disagreeable consequences behind them; especially cough. This secondary or supervening cough, is too often neglected, owing to the belief that more or less must necessarily follow this disease. This affection takes place after the patient has gone through the eruptive stage; and dissection reveals, that it is owing to an inflammation having attacked the mucous membrane of the bronchia. This complaint comes on sometimes so insidiously, that it makes a fatal progress before danger is apprehended; we should therefore never trust a patient to nature and time, in whom a considerable difficulty of breathing exists, accompanied by a wheezing; nor must we be deceived, because the cough is not severe; for in some of the worst cases, the cough is not always violent.

575. The cough is generally dry and fatiguing; and comes on by paroxysms. The pulse is hard for the most part, and always frequent; great thirst, tongue loaded, bowels constipated and a hot skin. This is a state of great danger; the bronchia are soon filled with mucus, and the patient dies from the failure of the due oxygenation of the blood. This complaint must be treated as an acute bronchitis.

576. A deranged state of the bowels may also follow, particularly if the disease has been ill-managed, by over-stimulation, exposure, or improper diet, too soon after the fever has passed

away. On this account a patient recovering from this disease, must never be exposed to cold, or damp; should be confined for some time to a milk and vegetable diet; and made to wear in cold, or cool weather, flannel next the skin.

577. Sydenham informs us, that the diarrhoea following measles, has always been best relieved, by blood-letting.

CHAPTER III.

OF SCARLATINA, OR SCARLET FEVER.

578. This is so denominated, on account of the peculiarly florid appearance of the skin, by which it is accompanied. In some one of the several forms, which we shall presently see it puts on, this complaint has, from an early period, occupied no inconsiderable share of attention. It is frequent in its occurrence, extensive in its prevalence, and, at times, exceedingly fatal in its terminations. The complaint prevails more in winter and spring, than in summer or autumn; attacking children, in preference to those who are more advanced in years.* By the nosological writers, it is divided into three forms; which are to be regarded, however, as nothing more than the same disease, marked by different degrees of violence:—the *scarlatina simplex*—*scarlatina anginosa*—and *scarlatina maligna*. To many, the latter is more familiar under the name of the *malignant*, or *putrid sore throat*.†

579. By *scarlatina simplex*, is to be understood, the simple constitutional disease, without any morbid affection of the throat. By *scarlatina anginosa*, a higher degree of the same complaint—the throat being at the same time inflamed and swollen. By *scarlatina maligna*, the same disease, in still greater violence—the throat being more violently affected, and the symptoms malignant.

580. It is unnecessary to enter into an elaborate discussion, to establish the identity of the diseases.

581. Like most other fevers, scarlatina commences with chilliness, fulness of the head, and lassitude; to which succeed, prostration of strength, which at times is very great; and nausea, or vomiting. The surface soon becomes florid, and hot; and on

* Sir Gilbert Blane says, that he never saw a person turned of forty, affected by it.

† Dr. Bateman does not call this form of the disease scarlatina, though he treats of it under this head.

examining the throat, it will sometimes be found inflamed; and the same red appearance extends to the tongue.* There is often at this time, more or less catarrhal affection; the head suffers severe pain, particularly about the frontal sinuses; and with which is sometimes associated, a disturbance of the intellectual faculties. The degree of these symptoms, indicates with sufficient exactness, the strength and character of the forming disease. Being very slight, the complaint will be *simplex*; if less so, the *anginosa*; and where they are severe and threatening, the *maligna*.

582. In the worst variety of scarlatina maligna, the commencing symptoms are alarmingly violent. The attack is, for the most part sudden; the patient becomes pale, sick, and faint; the head giddy, heavy, and confused, rather than severely pained; the oppression about the præcordia, is extreme; the heart palpitates, and the stomach suffers great uneasiness, though there is no vomiting—this organ being probably prostrated below the power of reaction. The face is pale, or livid; the eyes exhibit a glairy appearance, and are marked by a fatuitous or inebriated expression. “A remarkable tumefaction of the fingers sometimes takes place, which, with the erysipelatous tinge they soon acquire, is often of itself sufficient to characterize the disease.” Gregory.—In a word, the brain is generally severely affected; and the character of the eruption is also somewhat different—that is, it appears in more irregular patches, and the tone of colour of the efflorescence, is less brilliant, or even sometimes dusky; it is also wont to disappear and reappear at uncertain intervals. The temperature of the skin, is also lower than in the other varieties, often indeed not above the natural standard. Diarrhœa sometimes attend this form of scarlatina. The secretion from the nose, and other portions of the mucous membrane, is oftentimes so acrid as to excoriate. The throat and larynx, nay even the bronchi, yield an acrimonious secretion—the parotid and submaxillary glands, swell from inflammation, and even suppurate. This form of scarlatina sometimes terminates fatally on the third or fourth day; it is however, not so common by any means as the other species.†

* This last presents a very peculiar aspect. Through the fur with which it is covered, the elongated papillæ project their points, and are of intensely deep scarlet hue.

† Dr. Tweedie says that “in the fatal cases, the appearance on dissection were not always sufficient to explain the cause of death, which in such instances seemed more the result of a specific poison operating on the brain and mucous membranes. In some, the brain showed marks of vascularity and effusion; in others the mucous membrane of the larynx, near the arytenoid cartilages, was destroyed by ulceration, and the membrane of the trachea and bronchi was in several excessively inflamed. In one or two, the mucous membrane of the intestines was inflamed; in one instance it had passed into ulceration.” p. 203.

583. On the second or third day from the commencement of the disease, the febrile symptoms are considerable; the skin becomes morbidly sensible to the touch, and begins to be covered with an efflorescence, or florid eruption.* About the same time, a degree of redness and swelling appears in the fauces. The skin is excessively hot; more so perhaps than in any other form of febrile disease. The pulse is also very frequent, rarely being under one hundred and twenty strokes in a minute.

584. The reaction of the system being now completely developed, the pulse exhibits the character which belongs to the existing form of the disease—preternaturally frequent, quick, and active, though still moderate, if the disease be *simple*—more frequent, irritated, and tense, if it be *anginose*—of greater frequency still, but not so full, resisting, and firm, if it be *malignant*. The temperature of the body, the thirst, the scurf on the tongue, are also graduated in the same way; each symptom increasing in intensity, according to the augmented violence of the case.

585. The eruption assumes, at times, the form of red points, though generally, that of red patches, which spread and unite, so as to cover the whole surface. It appears first on the face and neck; and in the course of a short time, spreads gradually to the lower extremities. The redness is often considerable about the loins, and the bendings of the joints, and on the hands, and ends of the fingers, which feel stiff and swollen. The eruption is not very regular, either as to the time of its appearance, its steadiness, or its duration. It usually continues about four days, and goes off with desquamation of the cuticle. As the disease proceeds, the neck and lower jaw grow stiff, the tonsils swell, and become marked with specks, which degenerate into ulcers, covered with superficial, ash-coloured sloughs. These sloughs, in favourable cases, separate and come off, about the eighth or tenth day, when the ulcers underneath are fresh, and florid, and heal kindly. The fever, at the same time, gradually abates, and a great amendment becomes apparent. We may also add, that metastasis to the joints occasionally takes place.

586. But, in the more malignant cases, the course of the disease is very different. The sloughs on the tonsils grow fouler; and the discharge from them, and the nostrils becomes exceedingly acrid. The mouth assumes a dark colour, and is often encrusted with a black or brown fur. The breath is extremely offensive, a tenacious mucous secretion infests the fauces. The eyes and nostrils furnish an acrid serum. Hæmorrhagies some-

* The tone of colour is said to be that of a boiled lobster.

times take place from these parts, as also from the bowels; diarrhœa of a severe kind is often found present; so also delirium or coma. If the throat be examined, it will be found studded with more or less sloughs, with dark or livid bases. The parotids are swelled and tender to the touch. Painful induration of the glands of the neck, which sometimes terminate in large suppurating abscesses; tenesmus, and diarrhœa; which speedily sink the patient, if not early removed.

587. This is reputed to be a contagious disease. On this point, however, the evidence, to say the least, is equivocal. The facts connected with the spreading of scarlatina, seem to be perfectly explicable, on the ground of its being epidemic, and not contagious.* In this country the belief that it is a contagious disease, is by no means so general as it is in Europe, and especially as it is in Great Britain. I have never seen so far, any decided proof, that it has communicated itself in any one instance. On the contrary, I am strongly disposed to doubt its contagious quality. I attended a child with scarlatina anginosa, in a family of eight children; the child that was ill was constantly surrounded by the well children, yet not one of these sickened afterwards with this disease. The same thing precisely occurred in my own family; besides many less remarkable instances. Gregory says "the slowness of its diffusion is one of the most remarkable circumstances in its history." Vol. I. p. 237.

588. As regards the prognosis, it is unfavourable in proportion to the malignant character of the disease. Thus great prostration of strength; delirium; or coma; extreme restlessness; a distillation of very acrid sanies from the nose; a purple or livid appearance of the fauces, without tumefaction, interspersed with white specks, or dark sloughs, attended by diarrhœa of acrid matter; and above all, a change of the efflorescence to a mahogany colour, are mortal, or extremely alarming symptoms. The termination of this disease is sometimes exceedingly abrupt, and unexpected. We have known death to take place, in several instances, and this most suddenly, where every hope was entertained of reco-

* The weight of European authority is perhaps against us; and in actual practice, it will be safest to act under such a conviction. We are indeed told, that the power of infecting endures for a very considerable time—certainly for a week or two after the cessation of the efflorescence, and probably as long as the desquamation of the cuticle lasts. Persons who have been exposed to the contagion, have the disease, it is said, to break out on the fifth or sixth day. But notwithstanding the apparent admission, "that the weight of European authority is against us," it does not appear that the belief, that scarlatina is propagated by contagion is universal even in London, or one of the regulations of the Fever Hospital, is very unwise, as we are informed by Dr. Tweedie, that "of the eruptive fevers, cases of scarlatina alone are admissible."—*Illustrations of Fever*, p. 25.

very,* but a short time before. The favourable signs in scarlet fever are, the patient surviving the ninth day, without any decided mortal symptoms; the intensity of the colour of the skin abating gradually; desquamation of the cuticle, and the departure of the swelling from every portion of the body to which it had extended; the separation of the sloughs, with a healthy appearance of the parts from which they separated; pulse becoming slower and less irritated; heat abating; urine depositing a lateritious sediment, refreshing sleep, and return of appetite.

589. In its simple form, scarlet fever calls for very little medical aid. An emetic of ipecacuanha or antimony; purging with calomel, and afterwards with some one of the neutral salts; venesection, in case of fulness and pain in the head; the mild diaphoretics, aided by diluting drinks; and a regulated diet,† are all we need prescribe. But in the anginose state of the disease, more is required—the treatment, here, must be circumspect and vigorous; and much reliance is to be placed on the thorough evacuation of the alimentary canal. Unless, as is sometimes the case, the violence of the symptoms calls for the immediate use of the lancet, let the treatment commence by puking with ipecacuanha. Emetics are of the highest importance; and may sometimes be repeated during the course of the disease, should the symptoms be persevering.

590. The emetic should be followed by laxatives. Calomel would seem to be the most suitable, on account of its tendency to prevent, and remove congestions of the abdominal viscera, which are much to be dreaded, and vigilantly guarded against, in this disease. This is a disease in which congestions of the great viscera, are very apt to occur; and requires mercurial purging to unload the vessels, and restore the balance, which is thus destroyed in the circulation. In the more advanced stages of the disease, however, provided the bowels have been already fully evacuated, some of the milder purgatives may be employed. The best mode of exhibiting calomel is in divided doses—say six or eight grains divided into six parts; one part to be given every hour, until the whole is taken; unless the previous quantity may have answered. Should this quantity however fail to move the bowels, it must be followed by two or three tea-spoonfuls of calcined magnesia, mixed in a little sweetened milk, and drinking after it, some lemonade.

* When the disease is very malignant, death sometimes takes place on the third or fourth day; while in its milder forms, it will linger on to the second, or even third week. Generally, however, the patient is safe after the ninth day, under either form of the disease.

† By a regulated diet, we mean, a strict antiphlogistic one; that is, an entire forbearance from animal food; from every kind of liquor, whether fermented or distilled; and from spices of every species.

591. In case the pulse be full, tense, or hard, immediate recourse is to be had to venesection. The quantity of blood drawn, and the repetitions of the operation, are to be directed of course, by the judgment and experience of the practitioner. The relief felt by the patient, the appearance of the blood, and the effect on the pulse, must determine, whether it shall be repeated—the bleeding must be followed by purging. In the early or inflammatory condition of scarlatina, however, when there is considerable arterial action, and vast augmentation of heat on the surface, cold ablution, or sponging, gives great relief to the symptoms, and is a most comfortable process. We prefer sponging to ablutions. Some however are afraid of these cold applications, because the throat is sore; but this forms no exception; for it is not accompanied by cough or other pneumonic symptoms like measles; and the sponging, or even affusion has checked the sore throat most evidently. We would however make an exception to the employment of cold water, &c. when they produce chilliness; in this case tepid water may be substituted.

592. We are told the warm bath is exceedingly efficacious, when the eruption imperfectly takes place, owing to general languor; and especially when attended by coldness of the surface—or having appeared suddenly recedes, inducing great gastric distress, and other very unpleasant symptoms—to cleanse the foul ulcers of the throat, emetics are found most effectual—the emetic may be followed by the use of detergent gargles; the best of which are composed of Peruvian bark, with a portion of the tincture of myrrh—or, barley water, acidulated with the sulphuric or muriatic acid, with the addition of honey. An infusion of Cayenne pepper, alone, or mixed with barley water, or the decoction of bark, is much, and we have reason to believe not too much, praised as a gargle,* as far as we can rely on our own observations.

593. In the malignant shape of this disease, the general practice is nearly the same as in the preceding or anginose state. We rely mainly, on evacuations of the primæ viæ—first, by emetics, and next with the mercurial purges.

594. Whatever may have been the primary form of the disease, in the advanced stages, when appearances of great depression supervene, we have recourse to nearly similar measures. The object is to support the enfeebled system, and which is best accomplished by the carbonate of ammonia, camphor, turpentine,

* We are in the habit of using the Cayenne pepper gargle in the incipient stages of anginose affections, with the most decided advantage; and in the disease under consideration, it seems to us to be the only remedy that affords relief, if ulceration has not taken place.

bark, and wine—aided by the ordinary external irritant applications.

595. Long after the cessation of the active symptoms, there are certain consequences show themselves, to which our attention should be immediately called. Deafness is one of these; this proceeds from inflammation having invaded the Eustachian tube, and leaving it in a state of obstruction. It is an unpleasant affection, though we have never known any permanent mischief to result from it; it requires no treatment.* Œdematous swellings of the lower extremities, are a common, as well as a more serious inconvenience. The best treatment is to purge moderately, and afterwards exhibit the digitalis. It is here, that it sometimes proves pre-eminently beneficial. But in the removal of the effusion, it may be aided by frictions and bandages, if the swelling be large, and by exercise duly regulated, and persevering in a milk and vegetable diet. We have known the inflamed parotids run on to extensive suppuration, and require much time for healing. When this takes place during the continuance of considerable fever, and the parts exposed by sloughing look as if they had been carefully and beautifully dissected, death has constantly followed, as far as our observations have extended.

596. Dropsical affections frequently succeed to scarlet fever; this takes place after the mild, as well as after the severer form of this disease. We are inclined to believe, that this affection arises from the accompanying inflammation, not having been properly subdued by early depleting remedies. In consequence of this, the inflammation acquires a chronic, or a sub-acute form, which is only relieved by purging, even by blood-letting, and diuretics of the saline kind; as nitre, or nitre and squills. For children under seven years, and above three, we would give eight grains of nitre and one-fourth of a grain of squills three or four times a day. For those above seven to fifteen, twelve grains of nitre, and half a grain of squills may be given; from fifteen to adult age, from fifteen to twenty grains of nitre, and a grain of squills may be administered.

597. Much has been said of the preventive powers of belladonna in scarlet fever, in various parts of Europe, especially in Germany; and as every thing that can possibly diminish the frequency or abate the danger of this oftentimes formidable disease is eagerly sought after, we have thought it proper to introduce in this place a summary of what has been urged in favour of the prophylactic powers of this active drug; and at the same time to contrast these newly-raised expectations with what ap-

* Dr. Gregory states, that "not unfrequently permanent deafness is left by it." Vol. I. p. 240. Of this however we have never seen an example.

pears to be a fair and candid, and at the same time a sufficiently extensive experience upon this point—nevertheless declaring our entire want of confidence in this medicine, or perhaps any other, to prevent the accession of scarlet fever; especially when epidemic; a time of all others at which it would be useful. In matters of so much moment as the one under consideration, negative proofs of the efficacy of any means are not always to be relied upon; we should always endeavour, in making propositions in which the lives and happiness of our fellow creatures are involved, to arrive at absolute certainty, as far as this is practicable, before they are confidently promulgated to the public to be acted upon. Had this plan been adopted as regards the preventive powers of the belladonna, we believe we should have heard of no positive testimony in its favour.

“Belladonna a Preventive of Scarlet Fever.”

598. “It has been long known that Dr. Hahnemann, of Leipsic, has asserted the above fact—but, since the year 1818, several practitioners in the north of Europe have repeated these experiments, and they find them founded on truth. The first of these, Dr. Brendt, of Custrin, affirms that all who employed this remedy escaped the infection—and his account is corroborated by Dr. Mushbeck, of Demmin, in Western Pomerania, who says he has used it for seven years, and with equal success—and he administered it to all those who dwelt in the houses where scarlet fever prevailed, continuing its use until desquamation of the cuticle had taken place in those attacked. Dr. Dusterbourg, of Warbourg, has also published an account of a series of experiments, confirming those statements—and several subsequent memoirs have appeared, all equally corroborative of this virtue in the belladonna. The formula generally recommended, is a solution of two grains of the extract in an ounce of some distilled water—and to children from one to ten years of age, from one to five drops of this solution is given four times in the day—from ten years of age and upwards, from six to ten drops is given, also four times in the twenty-four hours.”*

“Belladonna in Scarlatina.”

599. “In the last volume of the Philadelphia Journal of the Medical and Physical Sciences, will be found some observations which are highly favourable to the efficacy of the belladonna as a preservative against scarlatina. Dr. Lehman has published, in

* Philada. Med. & Phys. Journ. from the Revue Médicale, Juin.

the twenty-second volume of Rust's Magazine, a memoir, in which he observes that an epidemic scarlatina prevailed at Torgan, in 1825, of so violent a character, that one in eight of those afflicted with it died, and that thirty patients, all of tender age, fell victims to it. The belladonna was administered with confidence, in many families in which the disease appeared, and there could be no doubt of the good quality of the extract employed; nevertheless it did not act either as a preservative, nor did it mitigate the violence of the disease. Dr. L. did not perceive any difference either in the violence of the disease, or its results, when it attacked those who had taken the belladonna, even for a long time and in large doses, and those who had never taken the medicine."

CHAPTER IV.

OF SMALL-POX.

600. It were seriously and ardently to be wished, that this fatal and loathsome disease, no longer required notice in works on practical medicine—but alas! we fear this important change is not to be effected in our day. It was fondly hoped; nay, confidently expected, that the discovery of Jenner, would have rid mankind from this cruel scourge, at no very distant period; but unfortunately, it has not so far answered our fondly indulged hopes, of extermination, though it has much mitigated the violence and danger of small-pox, as well as greatly abridged its ravages. Its frequent appearance in towns, villages, and countries, without our being able to say from whence it came, or by whom, or what introduced, keeps the mind of such, as have not passed its ordeal, constantly in fear of its visitation; and in perpetual dread of its consequences. This being the case, we have thought it proper to notice it in the present edition of this work, though we have nothing new to offer on either its history, or its treatment.

History.

601. It seems to be conceded upon all hands, that the small-pox, was first known in the east; and this for several centuries, before it travelled even so far west, as Europe. Moore in his history of this disease, renders it more than probable, that it was

known in both China and Hindostan from a very remote period of time; and that it did not reach Europe, until about the sixth century. During the latter part of the sixth, and of all, the seventh century, it spread over parts of both Asia and Africa; and especially, that part of the latter, that borders on the Mediterranean Sea. In the eighth century Europe became its seat; by the invasion of Italy, Spain, Sicily, and France, by the Saracens. It then travelled north; and Saxony, Switzerland and England, were visited by this dreadful plague, in the latter part of the ninth, and beginning of the tenth, centuries. From these places, but especially from Spain, it was made to visit South America in the sixteenth century, very soon after the death of Columbus. And from this period to the present moment, it appears to be occasionally in possession of almost every portion of the habitable world. The first account of this malady was given to Europe, at the end of the ninth century, by Rhazes, an Arabian physician of great talent, but who quotes a preceding account, by Aaron, of Alexandria.

602. Dr. Good remarks of the history of the small-pox by both these authorities, as a circumstance of remarkable singularity, that neither of these authors mention the contagious nature of this disease. And that it is equally singular that Aaron, should assert, that the same person is liable to the disease a second or even a third time. The Dr. asks, "has the disease undergone any change since that period so as to render those who have not had it, more susceptible of its influence, and those who have had it, less? In the descriptive part of the disease little is to be added to Rhazes' statement; and what is more singular, he recommends the cool treatment." p. 412.

Symptoms.

603. Physicians have divided this disease into two kinds, or varieties; for they cannot be looked upon, as species. Dr. Good indeed, after the fashion of some others, makes three; though we cannot see any thing in his third division beyond a variation, most probably arising from the state of the system at the time of invasion. Indeed, the same may be said of the more generally acknowledged division into *distinct*, and *confluent*; for we are perfectly convinced it does not depend upon the nature of the virus or remote cause, as we have seen the same matter produce the two different varieties—nay, we have a number of times seen the distinct small-pox produced by the matter of the confluent. Yet there are considerable differences, in the phenomena of the two states of the disease. In the *distinct* small-pox, the pustules are large, and distinct; they are well filled, and round; the fluid

when well *concocted*, or at its height, when discharged by puncture, has nearly the appearance of ordinary pus. While in the *confluent*, the pustules run into each other; are ill filled and flattened at top; are irregular in their form, and the spaces between the pustules, are, like the pustules themselves, pale. Yet each of these have several corresponding symptoms; as fever, thirst, head-ache, white tongue, chilliness, and hot skin.

Distinct.

604. The eruption is preceded by chill, vomiting, and some soreness of throat; and almost uniformly first appears upon the face, neck, and breast. It assumes the form of small red papulæ, and much resembles flea-bites. About the fourth day, the eruption becomes distinctly vesicular, with slight depressions in the centre of each pustule, which now contains a fluid, or lymph; at first this is transparent; but about the sixth day, it becomes well filled with a thick pus—each pustule has an inflamed, circumscribed margin, of greater or less intensity, which continues, until the fluid within it, becomes thick and disposed to dry. This redness or inflammation, is always more intense when the pustules are numerous, and the parts become swollen. Indeed, there is a strong disposition to effusion in the variolous inflammation—hence, the eyelids, especially, and the whole face, becomes swollen; and this in proportion to the degree of eruption. So much so is this the case, where the pustules are numerous, that the eyelids become closed, and temporary blindness ensues. The fever, which never fails to attend this disease, is of a high inflammatory character—hence, the intensity of the pustular inflammation, and its extreme sensibility. About the eighth or ninth day, the suppurative process in the pustules is complete. The fever now abates; and the pustules begin to diminish in size, and to lose their redness. On the eleventh, these little abscesses begin to dry, and look brown; and in a few days more, they desquamate; especially those, on the superior part of the body—those on the lower portion, require a little longer time.

605. As a general rule it may be remarked, that the severity of symptoms, bear a very regular proportion to the extent of the eruption—hence, when this disease is ushered in by a strong pyrexia, intense pain in the head and back, and great disturbance of the stomach, the eruption will be of proportionate extent, and the danger commensurate with both. Thus we find when the pustules are few, distinct, and wide apart, the accompanying symptoms are comparatively mild, and we might say, proportionably free from danger. While on the other hand, when the pimples are very numerous, and very contiguous to each other,

the symptoms bear a more aggravated form, and risk is augmented.

606. Four distinct stages are pretty strongly marked, when this disease assumes an intense form—first, the precursive; second, the eruptive; third, the maturing; fourth, the desquamating, or scabbing. Each of these stages, is marked in their commencement by an increase, of the febrile symptoms.

607. It is not unfrequent, that the attack of small-pox, whether it be the natural, or the induced, is ushered in by convulsions—this is especially the case, with children. And what is remarkable, this alarming symptom is frequently the presage of a mild disease; especially, if it be the inoculated small-pox, notwithstanding Dr. Good says, it “was the custom to make much lighter of, than the occasion justifies.”

Pathology.

608. The pathology of small-pox has been but very partially treated of, even by professed systematic writers—this we suppose has been chiefly owing, to the occupation of the skin by the pustules, being thought sufficient, to account for the other phenomena of the disease. Dr. Mackintosh has however, given us the following account of his own pathological researches in small-pox. He says, “I have seen marks of inflammation of the membranes, evinced by a considerable arborescent vascularity on the surface of the brain; the vessels of the pia mater being greatly loaded with blood; together with effusion under the arachnoid, and into the ventricles.” He however adds, “but it becomes me to speak with diffidence with respect to this part of the subject, as Dr. George Gregory says that he has ‘never been able to trace any morbid appearances in the head,’ which is rather at variance with the results of my limited experience, and with a statement he subsequently makes. In directing the mode of treatment, he says, ‘it is to be remembered also, that in small-pox, fully as much as in any other form of fever, there is a tendency to congestions and inflammation in the head and thorax.’

609. “Although I have been prevented by the impatience of surviving friends, from opening the head as often as I could have wished, yet many opportunities have been afforded to me of examining the contents of the thorax and abdomen. I have seen pustules in the pharynx, larynx, trachea, and œsophagus, in those who died by the twelfth or thirteenth day; on some occasions closing up the larynx. The mucous membrane of the bronchi very vascular; and the air tubes completely gorged with matter, most frequently of a reddish colour; but in no instance have I been able to dis-

cover pustules below the bifurcation. The substance of the lungs congested with blood; and in the first and second stages of inflammation, and in one instance, there was pleuritic effusion. In examining the body of a deformed girl who died under an attack of confluent small-pox, the peritoneum and pleura were both studded over with small circular spots, which looked like a faded eruption; but perhaps they might have been produced in the manner which we sometimes see in cases of purpura. I have seen nothing in the stomach to account for the severe burning pain complained of in the epigastric region; the mucous membrane has certainly shown vascularity, and has been covered with a viscid exudation, and the follicles very much increased in size, which appearance very often extends throughout the whole intestinal tube; and in three instances, I have seen pustules, or vesicles having a pustular appearance, with a depression in the centre, in the jejunum, ileum, and also in the large intestines;" "and some of them were surrounded by an inflammatory areola." *Practice of Physic*, Vol. I. p. 148.

Treatment.

610. In small-pox, be the variety which it may, the primary and most important indication, is the reduction of fever. This must be attempted, by every means that has been found useful in other phlogistic diseases—by blood-letting, where the tension and fulness of the pulse would justify this evacuation in any other inflammatory disease; by purging, especially by calomel, and the neutral salts; by cold drinks liberally administered; and by cool air being freely admitted; by frequent changes of bed and body, clothes; by a strict antiphlogistic regimen; and by keeping the patient upon a mattress or sacking-bottom when practicable, instead of being placed upon a feather bed; by spare covering of bed-clothes, &c.

Confluent.

611. We have already given the pathognomonic characters of this variety of small-pox. The efflorescence is diffused and general, without those points which in the distinct, mark the location of a pustule. About the third day an extended elevation of the skin, with considerable roughness, betray an attempt at the formation of pustules, but are prevented from being distinct, by their general coalescence, and forming themselves into larger or smaller patches.

612. These blotches, or assemblages of imperfect pustules, are ill filled and much less pronounced, than the pustules of the dis-

tinged, small-pox; and unlike the latter, are filled with a yellowish serum; and oftentimes, in many places on the same individual, with a kind of bloody ichor, which is never converted into a healthy pus. The fever is for the most part violent; and its type is synochus, or typhus; but which does not abate with the progress of the eruption; on the contrary, it very frequently augments, as this advances. The eyes are inflamed, and their lids much swollen; the head is confused; and not unfrequently delirium or coma succeed. A salivation, more or less profuse, keeps time with the eruption; at first, this is thin, and it readily flows from the mouth; but it soon becomes very ropy, and viscid, and is discharged with much difficulty. In children, a diarrhoea sometimes supervenes. About the eighth day the covering of these irregular pustules becomes brown, or nearly black, instead of yellow as in the distinct variety. The patient usually dies on, or about the eleventh day, though he may live to the sixteenth.

Prognosis.

613. The distinct small-pox is rarely, or never fatal—not so the confluent. Indeed we should ever be cautious in pronouncing favourably of this variety. When it is about however to terminate favourably, we find the swelling of the face to diminish, while the extremities become swoln. The salivation diminishes in quantity, and loses much of its viscidness. The pustules, or rather blotches, commence turning, or become brown, upon the face; and this progresses regularly, and slowly, to the extremities. But on the other hand, if the *secondary fever*, or that fever which is sure to take place at this time, be violent; if the pustules suddenly shrink, become white, and flatten themselves; if the features sink; if the saliva become extremely tenacious and scanty; if coma, or delirium increase; if little red spots resembling flea-bites be sprinkled over the body, followed by bleedings from various parts of the surface; if the pulse become extremely quick and fluttering, with a strong action of the heart, the patient will rarely continue beyond the eleventh day.

Treatment.

614. More caution is required in the management of this variety of small-pox, than in the distinct variety; though we must be guided in the treatment, by the same general plan. Bleeding should be used with great caution after the third day; and nothing will justify the abstraction of blood previously, but a strong, hard pulse. We are however, every way certain in our own minds, that when this state of pulse is present; and especially,

where there is much vomiting, and much tenderness of the epigastrium, that the abstraction of blood has been found highly useful, though we were persuaded that the patient would have the confluent small-pox. Purging, we think, can never be dispensed with, in the beginning of the disease; and the mercurial purges given at pretty long intervals, appear to answer best. The same attention must be paid to the admission, and the frequent renewal of fresh air. The drinks should also be cool, and mucilaginous; all animal substances must be strictly forbidden; and if the body require support, the farinaceous and mucilaginous substances should be selected—such as rice, tapioca, sago, arrow-root, or gum Arabic. In this state of things camphor has been warmly recommended, aided by wine-whey, or milk-punch—but we are of opinion, that either of these substances, have always augmented the secondary fever. Opening of the pustules is useful, as it seems to abate the severity of this adventitious excitement of the system, by diminishing a very extensive source of irritation and pain. For each pustule is an abscess in miniature; and the quantum of relief, is, like any other collection of pus, in proportion to the size of the abscess. It has however been thought by some, (indeed it is a popular belief,) that it increases the pitting; but our experience, leads us to reject this opinion.

SECT. I.—MODIFIED SMALL-POX, OR VARIOLA VACCINA, OR COW-POX.

615. We shall not notice one of the means by which this terrific disease is rendered milder, and very much less fatal, than when it is accidentally introduced into the system, namely, inoculation; as we trust, the other, (vaccination,) has procured for itself so much confidence, that it will always obtain a preference. It would be a flagrant waste of time, to recapitulate the arguments in favour of vaccination; or to enter into the unprofitable endeavour to account for the melioration of this disease by this process—it is now sufficiently conceded, that it is vastly preferable in every point of view—it is a very much more mild disease, if we only regard the local irritation or inflammation; and we are steadfastly of opinion, it is equal, in its protective powers. We shall therefore earnestly recommend its adoption, to the entire exclusion of “*Inoculation.*”

616. In describing this operation, and the progress of the artificial disease, we shall merely lay down a few general rules upon the subject; leaving any deviation from them, to the good sense, and experience, of the operator.

617. First. It seems to be agreed that the subject of this ope-

ration had better acquire at least three months of age, before vaccination is attempted.

618. Second. The child should be in good health at the time selected—that is, it should be free from all vascular irritation—as severe teething, fever, or catarrhal affections; though we never hesitate to insert vaccine virus in children, who are labouring under cuticular eruptions.

619. Third. The left arm is generally chosen—the spot selected for the insertion of the virus is on its anterior, central portion; or at the termination or insertion, of the deltoid muscle.

620. Fourth. The scab, is now almost universally chosen—a very small portion of which is to be finely ground between two pieces of glass, and then moistened sufficiently, (but not too much diluted,) by a very small drop of water. When thus prepared, it is to be collected upon the point of a lancet, and from this delivered upon the spot selected on the arm, by wiping the charged portion of the lancet up it. Then, with the point of the lancet, let the skin immediately under the virus, be very slightly irritated by frequently touching it in several places, with the point of the lancet, until a very feint appearance of blood is produced—now desist, and allow the part to be exposed until the matter dry upon it. Care is now to be taken, that the part be not disturbed by unnecessary washing, or by rudely handling it. About the fifth day, if the operation have been successful, a small point of inflammation will be perceived, which will gradually increase, from day to day, until a complete pustule is formed, surrounded by a beautiful blush, or areola—this usually takes place from the ninth, to the tenth day. Caution is required, that the pustule be not injured by some mechanical violence; for it is of consequence to preserve its integrity throughout the whole course of the disease.

621. Fifth. After a few days continuance, the areola loses the intensity of its colour—the fluid in the pustule becomes thicker; and acquires a dark mahogany hue—the pustule is depressed in its centre—the epidermis cracks around it; and on about the sixteenth, or seventeenth day, drops off. Much care should be taken, that it be not rudely detached by force or violence; and thus become lost to the purposes of the operator. To prevent this happening to the scabs we select for use, we place a piece of court plaster over the dried pustule, and suffer it to remain on, until it, with the scab, spontaneously detach themselves from the arm—by this means we are sure to preserve the scab. We are not in the habit of purging after this disease; or of subjecting the child to any medical discipline, during its progress.

CHAPTER V.

URTICARIA, OR NETTLE RASH.

622. THIS very troublesome, and sometimes obstinate complaint, is wont to attack children who are teething, or who indulge much in ascescent food, or fruits; especially in the summer season.

623. Dr. Good defines the idiopathic species to be—"rash in florid, itching, nettle sting weals, appearing about the second day; irregularly fading and reviving, or wandering from part to part: fever a mild remittent." Vol. II. p. 384. This definition may be correct in what Dr. Good calls the idiopathic form of urticaria; but there are some remarkable deviations from it. We have seen many instances of this complaint come on very suddenly, when certain articles had been taken into the stomach, and which was only relieved, by these substances being again discharged from it. We knew a gentleman in whom this complaint has been several times produced by eating of very young *boiled* chickens; when roasted or broiled they would not affect him; by boiled young cabbage in the spring of the year; by a draft of cold lemonade when his body was over-heated. After either of these substances had been received into the stomach a few minutes, he would become violently sick; would vomit, and in a moment be covered with weals, which would remain until he would effectually cleanse his stomach from the offending matter.

624. Dr. Hewson mentions several cases of eruptions which arose from taking of balsam copaiba; some resembled the weals of urticaria, others erythema, or roseola. We have also seen these effects from the balsam. Strawberries sometimes gives rise to urticaria; we knew a lady who never failed to have it after eating this fruit.

625. This is a very troublesome complaint in consequence of the excessive itching which always attends it. It is almost always accompanied by sickness of stomach, head-ache, giddiness, and great disposition to become chilly, upon the slightest exposure of any portion of the body. The fever which attends, may be of greater or less violence; but it almost always observes an evening exacerbation, at which time, all the symptoms are increased, and especially the itching. The weals which appear upon the skin, are sometimes very extensively spread over it;

and at other, confined to certain portions of it, especially upon the inner surface of the forearms, and inside of the thighs.

626. From the surface of the weals there issues an acrid serum, or lymph, which serves to perpetuate, or renew the itching; and such is the disposition of the skin, while labouring under this affection, that you may at pleasure, if the fever be considerable, produce a continued eruption, by drawing the nail forcibly over the skin, at almost any portion of it. This eruption sometimes disappears as suddenly as it had showed itself; and when this is the case, serious consequences have sometimes resulted, though the disease is very rarely fatal. We but once have witnessed danger from the retrocession of this eruption. In this case the patient had previously several attacks of an intermittent, from which she had been relieved each time by the sulphate of quinine. Her health appeared to be rapidly mending for some time, and she had nearly acquired her wonted strength; when very early one morning she was attacked with urticaria to which she had been occasionally liable.

627. Soon after it made its appearance she became extremely sick, and vomited very freely; she complained of a severe pain in the head, which was quickly followed by delirium. At this time we saw her; besides the symptoms just named, we found her extremely restless, throwing herself into a variety of positions, as if unable to keep quiet for a moment.

628. The face was cadaverous, and evinced much uneasiness. Her intellect was not sufficiently collected to give any rational answer to our questions.

629. The extremities were cold, the pulse nearly extinct, and the breathing very laborious; in a word, her situation was truly alarming. Hot applications were made to the feet and legs; a very large warm sinapism was applied to the region of the stomach; and ten grains of the carbonate of ammonia were ordered every hour, together with a spoonful of hot brandy toddy every few minutes.

630. The parts of the body from which the eruption had disappeared exhibited a mottled, livid hue; other portions of the skin were "goose-fleshed" to a great degree. The bowels were spontaneously opened, at the time the puking took place; and she passed a large quantity of urine. We saw our patient after an interval of two hours, and found her in rather a more favourable situation, but very far from being relieved.

631. The legs and feet were a little warmer, but the mustard had scarcely acted upon the skin. The volatile alkali, and brandy toddy sat well upon her stomach; the delirium was somewhat abated; and the whole skin looked more natural. The remedies were ordered to be continued.

632. At the end of two more hours, we again visited our patient, and found her much amended—that is, the warmth of the body greater, and more natural; the delirium and jactitation less; the pulse more open; the countenance more natural, and less distressed; but no return of the eruption. Remedies were ordered to be continued.

633. In the evening, upon our return, we found a pretty plentiful crop of the eruptive weals, attended by much itching. The warmth of the skin rather above the natural standard; the delirium was gone; the inquietude over. The volatile alkali and brandy were suspended; a liberal dose of magnesia ordered, and a little chicken water, from time to time, was allowed. On our visit on the following morning we found our patient feeble, but relieved from the eruption, and free from fever. She was soon after restored to health.

634. It would be difficult to say what may be the cause of idiopathic urticaria; be this what it may, the force of the disease is chiefly spent upon the cutaneous system; but with which the stomach is sure to sympathize: or the stomach may be the seat of the affection, and the skin sympathize with it. It sometimes becomes chronic, and we have known several young people liable several times in the year to returns of it, without any evident exciting cause.

635. This disease, however, is much more frequently a sympathetic affection, arising sometimes from difficult dentition, and at others from some offensive substance taken into the stomach; this is especially the case with children until the age of puberty. Acids of every kind seem capable of producing it—hence the frequency of its appearance after crude fruit, cucumbers, young cabbage, lemonade, when the body is heated, &c. The plan of treating this complaint is in conformity to the condition of the stomach; for whether this disease be idiopathic or symptomatic, the stomach is sure to possess great acidity—to destroy this is essential, both for its alleviation and cure.

636. Magnesia should, therefore, be freely prescribed; lime-water and milk should also be given, particularly where the eruption has continued several days. A milk diet should be adhered to; and if no fever be present, chicken water and beef tea may be indulged in.

637. It is common in this disease to give saline purges; but this is decidedly injurious—there is no purgative so certain or proper, as magnesia, or magnesia and rhubarb. It is also common to permit the patient to take lemonade; but this is still worse—plain water or toast water, not too cold, are the best drinks. Solid food should be avoided; as should damp places, or streams of cold air.

638. To relieve the excessive itching, the patient may be liberally dusted with well-toasted rye or wheat flour, from which much relief will be experienced. In the chronic form of this complaint, we have found a persevering use of small doses of Fowler's mineral solution to have succeeded in every case in which we have hitherto tried it.

639. A very interesting case of chronic urticaria is related by Cazenave. "In the Hospital of St. Louis, in a patient of Mr. Biett's wards," says Mr. C., "we have seen it, (urticaria,) accompanying a quotidian intermitting fever, and after having lasted for four years, finally induce swellings and great distention, ecchymoses, ruptures, and ulcerations. In many paroxysms it was accompanied with a general tumefaction; sometimes to such a degree, that the patient was nearly suffocated; his respiration was hurried, the movement of the thorax very slight, the neck swelled, the face puffed up, and of a violet colour, the pulsations of the heart intermitting, and at times scarce perceptible, and death, which appeared imminent, only prevented by large bleedings."

640. "This patient, who had passed through several hospitals, and in which every means of cure had failed, was at last restored to health by the use of Fowler's solution."*

641. We believe we were the first to recommend Fowler's solution, for the cure of chronic urticaria.

642. Children of from seven to fourteen years old, may take four drops every morning, noon, and evening, in sugar and water; or should this sicken, give but three.

CHAPTER VI.

ERYSIPELAS.

643. THIS disease is familiarly called, St. Anthony's fire; it is classed among the exanthemata by nosological writers, and holds in the public estimation a distinguished place, from its alleged violence and danger.

644. It shows itself upon the skin in one or more places at the same time, and to a greater or less extent. It is characterized by a deep red colour, heat, and swelling, which sometimes penetrates through the corpus mucosum to the subcutaneous cel-

* Prac. Syn. of Cut. Dis. trans. p. 65.

lular tissue; the redness disappears by pressure, but quickly returns when this is taken off. It may attack any portion of the skin; though it is more common for it to select the extremities, and face.*

645. This affection is divided into several varieties by writers; thus Mr. Lawrence divides it into three; namely, the simple, the œdematous, and the phlegmonous. Dr. Good recognises two, the local and erratic erysipelas; and Cazenave confines it to two, namely, erysipelas, and phlegmonous erysipelas.

646. We do not think this complaint ever entitled to the distinction of phlegmonous; as a healthy pus has never been seen in any instance of erysipelas; nor does it pursue the same œconomy as a phlegmonous inflammation in its course to suppuration. One of the provisions of the system in a genuine phlegmon, is the swelling which takes place immediately below the skin; this becomes very hard and circumscribed in consequence of the effusion of coagulable lymph, which is intended to limit the extent of the suppurating process, and to prevent the diffusion of pus after its formation, through the circumjacent cellular tissue. Besides, erysipelas has but little disposition to suppurate, unless it penetrate deep; this is the very reverse of phlegmonous inflammation, whether deep-seated or not.

647. Now, this circumscription never takes place in erysipelas; on the contrary, the fluid formed by this inflammation is permitted to flow where it list, through the cellular meshes; and hence the extent to which it will sometimes spread when the complaint is very active and extensive, especially when the part is depending. We once saw it in a child extend from the lower points of the scapulæ to the base of the sacrum.

648. Again, in a genuine phlegmonous inflammation, however exalted it may be, the part occupied by its action, does not vesicate; nor is the tone of its colour like that of erysipelas. Phlegmonous inflammation may proceed gradually from a deep-seated part until it arrive at the skin; and when it penetrates this, it may be at first seen perhaps as a slight blush, and confined to

* It is asserted by Dr. Gregory, that "the genuine inflammation of the skin has peculiar characters, which have acquired for it the name of erythematous, or more properly, of erysipelatous inflammation." Why this is advanced, we are at a loss to understand exactly; since so many exceptions are constantly presenting themselves. For the skin is equally liable to phlegmon, as to erysipelas, and between these two inflammations there is much difference both in phenomena, and terminations; for even when both resolve, there is a distinction. Phlegmon, when it disappears by resolution, departs without leaving any evidence of injury to the cuticular surface; whereas erysipelas desquamates. Phlegmon, when it terminates by suppuration upon any but a secreting surface, is by the formation of an abscess, defined or limited; erysipelas ends in vesicles, phlyctenæ, and in the formation of a bloody sanies.

a small point, but it soon extends itself, until it may occupy a large surface, and be of an intense red. Yet it does not vesicate nor assume the yellowish hue of erysipelas. Erysipelas almost always commences on the surface first, and then penetrates.

649. Mr. Lawrence says, "the pain, (in erysipelas,) is not so intense and unremitting as in phlegmon, nor is it attended by throbbing."* Does this not prove a difference of character in the two inflammations? since either will proceed to its peculiar mode of suppurating, but are perhaps never convertible; and consequently the difference in phenomena in this process cannot depend upon the *degree* of inflammation, but to a *specific mode of action*; and this will constitute an essential difference in these phlogoses. It is therefore, we think, a great misnomer, to call a certain stage of erysipelas, for it is nothing more, phlegmonous; since it has no other affinity to it, than it has to all the other phlegmasia.

650. Besides, erysipelas it is contended by many, is contagious; Dr. Wells has adduced a number of facts upon this subject, the force of which seems to have produced conviction on the mind of Dr. Good; though they do not appear so conclusive to us. And agreeably to Willan, erysipelas may be communicated by inoculation; but no one has ever pretended that a phlegmonous inflammation has been propagated by the same means.

651. The character of its terminations is also different from the phlegmonous inflammation; on the surface, vesicles, bullæ, or phlyctenæ form, containing a fluid of a pale watery or straw colour, or a bloody sanies, and the whole part affected by this inflammation, when severe, is particularly disposed to end in gangrene. Besides, Dr. Parr declares it to have been epidemic. We are therefore led to the belief, that this inflammation is peculiar, if not *sui generis*, especially when we consider with what rapidity it runs on to its own particular modes of termination.

652. The erysipelas of Cazenave, the simple of Lawrence, and the local of Good, more frequently selects the face for its seat than any other portion of the body. This seems to be admitted by almost all the writers upon this disease; indeed this is so obviously the case in its idiopathic form, that Mr. Arnott proposes "that the term erysipelas be restricted to that febrile affection of the system, accompanied with inflammation of the integuments of the face, to which it has been most usually applied, and that, until we have better evidence for so doing, the expressions, 'erysipelas,' and 'erysipelatos,' should not be applied to affections of the skin in other parts of the body." He

looks upon erysipelas of the face as a peculiar affection; and that it should be distinguished from other inflammations of the skin by a distinct name. Because it is preceded and accompanied by fever; by affections of the sensorium; by its having a determinate course, and by its being probably caused by contagion.*

653. It is almost always, when it is of any extent, ushered in by chilliness, lassitude, and pain.

654. Heat alternates with chilliness, and the pain is confined very much to the head and neck. After these symptoms have continued with more or less frequency or force, for twenty-four, and eight and forty hours, the inflammation shows itself upon one side of the face, the cheek, or immediately across the nose. A burning, and an itching, is for the most part first felt in the spot selected for its attack; and its approach is perhaps hastened by scratching the part.

655. The redness is sometimes very intense; at others less so; but it can always be displaced by the pressure of the finger, though it quickly returns upon its being removed. Vesicles or bullæ now appear, filled with a clear watery fluid; these gradually assume a yellowish colour, which soon yield, and permit the fluid to escape. More or less swelling always attends this inflammation; and this is sometimes excessive; when so, it is almost always accompanied with considerable fever and delirium. And in this respect it may be said to differ widely from a phlegmonous inflammation, if this be even more extensive, and very much more painful. We have seen however this complaint when not extensive, and where the vesication was very limited, unattended by fever; but this is rare. Mr. Lawrence says, "the neighbouring absorbent glands are frequently inflamed, and red streaks are seen leading towards them." p. 5. This we have never witnessed.

656. Sometimes, both sides of the face may be occupied by erysipelas at the same time; at others they are successive. When but one side is the seat of this affection, a line of demarcation is drawn from the forehead to the chin. This separation of the sound from the diseased part, is also another characteristic of the erysipelatous inflammation, of which we have no example that we recollect, in the phlegmonous.

657. The febrile symptoms terminate from the eighth to the tenth day; about this period, or sometimes sooner, the inflammation changes to a yellowish or brown colour; after this the surface becomes dry, and the cuticle is thrown off. This disease however is oftentimes treacherous; for after raising an expectation that it had taken its leave, it suddenly, and perhaps as violently, returns to continue some days longer. When the extre-

* Lond. Med. and Phys. Journ. Vol. LVII. p. 210.

mities are the seat of this complaint, the constitutional symptoms are less violent; and it runs its course generally more rapidly, and desquamation follows sooner.

658. The erratic nature of this inflammation is known to all observers; and this property may also serve to confirm the opinion that its character and nature is peculiar. It wanders more in children, we think, than in the adult; and more frequently proves fatal in the former than with the latter; especially under particular circumstances, as in ill-ventilated apartments, or in crowded hospitals. Indeed, Dr. Underwood says he has not met with this disease often, except in lying-in hospitals. Its ordinary time for attack in such situations, is generally a few days after birth—and some have said, never after the month. But Dr. Underwood declares this not to be the case; in private practice we have seen it very much later.

659. Dr. Good seems however unwilling to admit this affection in children to be a genuine erysipelas; he says, "what however is usually called the infantile erysipelas, is more commonly a variety of gangrenous erythema, produced, in many instances, by want of cleanliness, pure air, and nutritive food."* We are disposed to believe this to be a distinction without a difference. Nor do we think in a practical point of view, that any thing is gained by this multiplication of species and varieties. We are of opinion, that an erythematous inflammation,† of sufficient force to produce vesicles, may justly be called erysipelas; as the variation in phenomena, in the species, and varieties of these supposed different diseases, prove them to be virtually but one disease, modified by the force of the remote causes, constitution, or other contingent circumstances. Thus the erythema gangrenosum,‡ and the erysipelas erraticum,§ of Good, are but one and the same disease.

* Study of Med. Vol. II. p. 409.

† "Erythema—Red, glabrous, tumid fulness of the integuments; disappearing on pressure; pain burning; inflammation ulcerative; termination in cuticular scales, or vesicles; occasionally in gangrene." Good, p. 200. Let this definition be compared with the histories of "gangrenous erythema" and the "erratic erysipelas," and but little difference will be perceived in their characters; and that little will perhaps be found to consist, more in accidental circumstances than in essential qualities.

"There is certainly a considerable difference between a pimple and a boil, and between erythema in the face, and erysipelas. The difference, however, is only in degree."—*Philip on Symptomatic Fever*, p. 39.

‡ "The gangrenous erythema, is a frequent companion of debilitated or relaxed constitutions, but is mostly to be met with in advanced life, or weakly adolescence, or in infancy; and particularly where, in old age, the constitution has been broken down by habits of intemperance and excess; the circulation is languid, and the blood even in the arteries assumes a venous appearance."—*Good's Study of Medicine*, Vol. II. p. 207.

§ "The inflammatory blush soon assumes a livid hue, and is sometimes covered with, or surrounded by petechiæ; the cuticle is separated to a consi-

660. Nor can we see any just cause, for the species into which erysipelas is divided—for essentially it is one and the same disease; unless it may serve to abridge the history of this complaint, and more clearly point out the indications which may arise from the several conditions in which it may exhibit itself. For the several forms of erysipelas are like the several forms of gout—but gout is nevertheless gout.

661. Now the common location for gout, is, the foot—yet it frequently strays to other parts; but it is still gout; it does not become a new disease; for wherever situated, the action excited, and by which it manifests itself in the new part, is precisely the same; and if curable, the same remedies would reach it in one spot, as well as in another, and this, under all its modifications; for of this it is susceptible, in proportion as the nature and force of the remote causes may be, and as the difference of constitutions may exist. Now, this erratic disposition of gout, is really and truly, a part of its character; and which it displays whenever circumstances invite to it. So it is with erysipelas; it will be either stationary, or it may wander—but to wherever it flies it is still the same disease, to all intents and purposes; differing in nothing, but its seat, and the consequences that the part last selected, may impose upon it.

662. Dr. Good says that “the local erysipelas generally exhibits itself on one side of the face, or on some one of the limbs.” “In the erratic, the complaint usually, and particularly in adults, begins its attack in the face, and spreads in succession to the extremities.” In what essential does the latter differ from the former? in none; nor does the distinction lead to the smallest practical good—for it is altogether dependent upon the condition of the system, whether erysipelas shall be stationary or fugitive; for that which is stationary at this moment, may be erratic the next; and this is one of the absolute characters of the disease.

663. So long then, according to Dr. Good, as the inflammation continues without changing its seat, it is the “local erysipelas;”^{*} and when it wanders, it is the “erratic erysipelas;”[†]

derable extent from the cutis, breaks, and exposes a foul and ulcerating surface, that almost immediately passes into gangrene. In some instances, nevertheless, *these cutaneous efflorescences are probably accompanied by a true erysipelatous fever.*” We would now ask, can an “erysipelatous fever” attend any other disease than itself? for it would be idle to attempt to separate an “erysipelatous fever,” from the peculiar inflammation called erysipelas.—Ib. p. 408.

^{*} “Local erysipelas—limited to a particular part; the cuticle raised into numerous, aggregate, distinct cells; or the cells running into one or more blebs or large blisters.”

[†] “Erratic erysipelas—travelling in successive patches from part to part; the earlier patches declining as new ones make their appearance.”—*Good's Study of Med. Vol. II. p. 407 and 408.*

“Erratic erysipelas—instead of passing through its various stages where it

but is there any essential difference in the characters of the two forms? or in other words, is there a species of this disease, which will always shift its ground; and is there another, that will never do so, but always, and under all circumstances, remain stationary? Certainly there is not—then there is but one erysipelas, and the variety that may be observed in its primary appearances, its progress, its ultimate appearances, and its terminations, depends upon the body it infests, and not upon a difference in the disease itself.

664. When the erysipelatous inflammation penetrates the skin and attacks the cellular membrane, (the phlegmonous erysipelas of authors,) it for the most part becomes from its extent, a very serious disease, as its limits cannot always be restricted. This seems to be more particularly the case when the extremities are the seat of this affection, unless it should be confined, as sometimes happens, to one spot.

665. The symptoms of this form of erysipelas, are always more violent than when the inflammation has not penetrated the rete mucosum. But the force of the symptoms will necessarily vary, as the disease may have penetrated to a greater or less depth, the extent of surface it may occupy, and the nature of the tissue it may come in contact with.

666. Should the disease persevere beyond the sixth or eighth day, without terminating in resolution, suppuration generally takes place; this is announced by a diminution of the burning pain to which the part had been subject, and a throbbing sensation takes the place of it; the redness diminishes; chilliness; and matter or pus is discharged perhaps, accompanied with portions of dead cellular membrane. When very large portions of the cellular tissue is involved in this inflammation, delirium with very severe pain is frequently experienced. The part is very red, and the slightest pressure gives excessive pain. Fever is augmented; the pulse is corded and frequent; thirst excessive; tongue dry, though the skin is sometimes very moist.

667. In these cases resolution is scarcely to be looked for, though the treatment may have been vigorous, proper, and industriously pursued. Suppuration is at hand, and though the external inflammation appears to be abated, yet the swelling increases; for œdema, to a greater or less extent, is now added to the other evils. The matter is not always discharged by ulcera-

was first developed, it may successively attack different parts of the body, and disappear from that which was first affected. At other times it gradually extends over a greater surface, without disappearing from its original point of attack, so as in some rare instances, to cover the whole body at the same moment. In certain cases it suddenly disappears, and attacks another spot, leaving no other traces than a slight desquamation."—*Cazenave, p. 33.*

tion, and may therefore remain for a long time within its cavities, and thus augmenting symptoms already sufficiently severe. When the matter insinuates itself as far as, or commences at a fascia, the pain oftentimes becomes intolerable, and the patient would soon die from irritation, were artificial means not resorted to, to give it vent.

668. Mr. Lawrence says, "the skin and the cellular substances are the seat of this inflammation, which, in examination after death, is generally found not to extend beneath the fascia. I have observed that the cellular texture connecting the adipose membrane to the fasciæ or muscles, suppurates and sloughs more readily than the adipose substance itself. Mortification frequently occurs in the former when the latter is still quite healthy, or at least only affected by vascular distention." "Mr. Hutchinson speaks of the 'aponeuroses of the muscles,' and the 'aponeurotic expansion,' being the principal seat of the disease; and he adds, he is persuaded it is 'confined chiefly to membranous parts, such as the aponeurotic expansions, skin, sheaths of tendons, muscles, &c.' If, which is doubtful, Mr. H. means that the fasciæ or aponeuroses properly so called, are the seat, or the principal seat of the disease, I cannot agree with him, having always found them unaffected in examinations after death, and seen no symptoms referable to such inflammation during life." p. 15.

669. "A consideration of the origin, development, and effects of erysipelas, of all its phenomena, whether local or general, leads us irresistibly to the conclusion that the nature of the affection is inflammatory. In its four leading characters of redness, swelling, heat, and pain, and in its effects of effusion, suppuration, and sloughing, it agrees with what is called common or phlegmonous inflammation; while the general disturbance, preceding and accompanying the local affection, is exactly alike in the two cases. Erysipelas then, is merely a particular modification of cutaneous, or cutaneous and cellular inflammation. If we were to class these according to their natural affinities, we should place erysipelas between the exanthemata, and phlegmon. It is less diffused than the former, not so circumscribed as the latter. The exanthemata are confined to the skin; erysipelas affects both skin and cellular structure; while phlegmon has its original seat in the latter, the skin being secondarily involved." p. 18. Notwithstanding this attempt to identify the phlegmonous with the erysipelatous inflammation, we remain unconverted—we are equally persuaded the two inflammations are essentially different, as many of their phenomena declare, and which we have attempted to prove. We are of opinion that the only division that erysipelas is justly susceptible of, is into the superficial, and the deep-seated.

670. Indeed, Mr. Lawrence himself, notwithstanding his desire to make them mere "degrees" of inflammation, furnishes us with sufficient data to prove them essentially different. He says, "the difference between erysipelas and phlegmon, however, is not merely in the *original seat or degree of the disturbance*; there is also a difference in *kind*. We may indeed say generally that phlegmon is a more violent inflammation than erysipelas, but sloughing of the cellular substance is more frequent in the latter than in the former." We would ask whether these facts do not prove their difference completely; first, there is a difference in "seat and degree;" secondly, in kind; third, in result; for "sloughing of the cellular membrane is more frequent" in erysipelas than in phlegmon. This last is a curious fact, and seems to destroy what Mr. L. had before declared, that erysipelas was a less violent inflammation than the phlegmon; which is equal to declaring that the lesser degree of inflammation will kill a part sooner than a greater. Besides, phlegmon passes through various stages of intensity, yet we never discover in any one of these degrees, the erysipelatous inflammation, as an usual attendant upon its progress, which should happen did they differ but in degree.

671. Again, when phlegmon is about to terminate by resolution, it must be by a gradual abatement of its inflammatory force; a minor degree of inflammation, or that degree which should constitute erysipelas, were they but degrees of inflammation,* must necessarily arrive; but this never happens—for if it did, it would be unsafe ever to attempt its resolution; since erysipelas, agreeably to this doctrine, must necessarily supervene. Phlegmon, therefore, according to the views of Mr. L. should in its progress as well as on its decline, become erysipelas. Now, is this agreeably to fact? Indeed, were this doctrine true, phlegmon should never exhibit any other phenomena than erysipelas; it should never, or at least very rarely, have characters of its own, if degree alone made the difference.

672. Were this true, Mr. L. would never have had it in his power to declare, that, "the most striking and important distinction between the two affections is that inflammation is confined to *one spot in phlegmon*, and is distinctly *circumscribed* in its seat, while it is *diffused* in erysipelas, and *spreads without limit*. This difference seems to depend on the adhesive character of the inflammatory process in the former; the substance called coagulating, coagulable, or organizable lymph effused

* Mr. Lawrence says, "as erythema, simple erysipelas, and phlegmonous erysipelas are merely three *degrees* of the same affection, they ought never to be separated in our classification." p. 30. Yet we shall see presently, that he abandons this division.

round the inflamed part, forms a boundary between it and the sound portion, which is altogether wanting in erysipelas." And on what does this depend; upon the intensity of the inflammation? Is an exalted degree of inflammation more favourable to the effusion of coagulating lymph, than a milder? Yet this more benign form, kills parts more certainly, than the more violent, agreeably to this—is this natural? He adds, "in the latter the effusion is altogether serous; hence, when matter is formed, it is not confined to one spot, but becomes extensively diffused in the cellular tissue. We cannot at present explain the cause of this difference; that is, we do not know how it happens that coagulating lymph is poured out in the one case, and serum in the other." No, we cannot explain it—we only have to acknowledge the fact, that every distinct inflammation has its own habits, if we may so term it; and that these differences of habits constitute the specific differences of inflammation. No one can explain, why one inflammation shall produce the matter of small-pox, another of cow-pox, &c. yet this happens, not from the degree of the respective inflammation, but upon the peculiar and distinct character of the inflammation—yet each of these inflammations have "the four leading characters of redness, swelling, heat, and pain," which it may be perceived are not sufficient to explain the difference in the phenomena of the several inflammations.

673. But Mr. L. appears immediately after to abandon the notion of "degree" constituting the difference between phlegmon and erysipelas, and acknowledges, tacitly at least, there is a *different mode of action* in the various inflammations, and this is all we contend for, since this constitutes the *essential difference* between inflammations, and consequently between phlegmon and erysipelas. He confesses, "we are equally ignorant of the essential nature of many other modifications of inflammation, which are yet *obviously distinct*. No one could overlook the differences between inflammation of the finger from a wound, that of a whitlow, of chilblain, of erysipelas, of gout; yet who could explain the differences of *vascular action* which causes these distinctions?" pp. 15, 16, 17, 18, 19. If it be confessed there is a difference in "*vascular action*," in the several inflammations, then a difference in "*vascular action*" must constitute the difference of inflammation. How is a difference of "*vascular action*" proved, but by the phenomena it exhibits; if this be true, there must necessarily be an essential difference between the erysipelatous, and the phlegmonous inflammation, as their phenomena differ as widely as that of small-pox from measles. From these considerations we think it wrong ever to call any variety of erysipelas, phlegmonous.

674. The mode of treating this state of erysipelas, properly belongs to surgery; and the best mode of employing its aid, is a much mooted point at this moment.* The dispute upon this subject, is carried on with an unjustifiable, as well as an injurious acrimony; and while the disputants are exercising against each other every kind of vituperation, the profession is suffering in its dignity by their unnecessary warmth.

675. Agreeably to Mr. Hutchinson, the erysipelas phlegmonodes is a disease of common occurrence in the British navy; it attacks the more condensed or aponeurotic muscular tissue, though it may primarily affect the skin. When pus is formed, it is beneath these aponeuroses, which it destroys rapidly. It sometimes affects the periosteum, which it completely detaches from the bone itself.

676. It would seem, that the anatomical characters of erysipelas are neither extensive, nor very interesting, according to Cazenave. He says, "in cases of severe erysipelas, not only are traces of inflammation of the skin discoverable, but the subcutaneous cellular tissue is found very friable, and infiltrated with pus, which is in many cases collected in particular spots."

677. "When death has taken place suddenly from violent cerebral affection, no appreciable pathological lesions are discoverable. At other times, diseases, either of the lungs, or the alimentary canal, are met with, whose existence had never been suspected." p. 37.

678. The causes of erysipelas, may be the same as those, that cause any other inflammation. Over-stimulation of any kind; as too high living; the too free use of ardent spirits; suppressed evacuations; punctured or other wounds; sudden application of cold when the body is heated; irritants applied to the skin, as mustard, spirit of turpentine, horse-raddish, garlic, &c. It sometimes arises from a deranged condition of the biliary and digestive organs, and thus becomes what Desault calls the *bilious* erysipelas; it is then sympathetic.

679. Females with delicate skins are more liable to it than dark-complexioned women, especially about the period of puberty, and at the cessation of the menses. Women who have borne many children, and particularly such, as were liable to œdematous swellings during their pregnancies; and those of very costive habits, and sour stomachs. Men are less liable than women. Children, whether male or female, when crowded in ill-ventilated hospitals, are particularly obnoxious to it.

680. Certain chronic gastric derangements, are accompanied with erysipelas; and acute inflammations of this organ, has also given rise to it.

* See Lancet.

681. The symptoms of erysipelas as detailed above, will readily distinguish it from any other inflammatory affection of the skin, though erythema is sometimes mistaken for it by those, who have paid but little attention to the characters of diseases, or who are in the habit of calling every efflorescence of the skin, erysipelas.

682. But little inconvenience, and less danger attend the partial, and mild form of this disease. Not so, however, is the graver cases of erysipelas; when the surface it occupies is considerable; when it quickly vesicates, and its colour is intense; when much fever attends; when it is accompanied by delirium or cerebral congestion, or inflammation of the stomach, it becomes a disease of imminent danger. It is especially threatening to such as may have œdematous limbs, or anasarctous swellings; or when it accompanies acute diseases of the chest, stomach, liver, or intestines. And it is particularly alarming, when the colour of the inflammation assumes a gangrenous form; as this betrays a sinking condition of the system, which too seldom can be restored.

683. Much diversity of opinion has ever existed as to the proper mode of treating erysipelas. This has arisen, we apprehend, more from the expectation of finding a *remedy*, that shall always arrest this disease in limine, or subdue it, at any stage of its progress, rather than from our not possessing means suitable to the degree of its intensity, and by which, its force may be diminished, and its danger lessened. It will at once present itself as a truth, that the expectation of discovering a specific for this disease would be futile. For erysipelas, is like all the rest of acute diseases, in having various stages and degrees of intensity; and in presenting ever-varying phenomena, as constitution, age, remote causes, exciting causes, &c. may differ. It has also, like some other fevers, the misfortune to have attached to it, one generally governing or prevailing *type*, by most of the writers upon this subject. For by almost all, it is considered as a disease of debility; and that it must be treated by tonics and stimulants, both internally and externally, under all circumstances. Others condemn this practice, as highly injurious, and propose an opposite mode of treatment, through all its stages, but which is not less at variance with the occasional character of this disease—the latter, upon the whole, is the safer plan, if either be implicitly relied upon.

684. Mr. Lawrence, whose experience has been both ample and successful, says upon this point, “although erysipelas in all its forms, is a disease of frequent occurrence, and comes daily under the observation of the physician and surgeon, great difference of opinion still prevails respecting its nature and manage-

ment. Regarding it as an affection essentially inflammatory, some adopt the antiphlogistic plan, including general and local bleeding; while others, conceiving that the part, the constitution, or both, are in a state of debility, endeavour to remove this by the free use of stimulants and tonics, more especially by bark, ammonia, and wine. The former appears to me the correct view and practice; I accordingly consider the latter notion completely erroneous, and the treatment founded on it, not only inappropriate, but injurious.”*

685. Thus Dr. Underwood declares bark to be the best constitutional remedy, and saturnine and camphorated medicaments the best local applications; while Mr. Burns and others are very doubtful as to the propriety of using the bark, though he agrees with Dr. Garthshore, that camphorated spirit is the best remedy from first to last. In all these varying directions for the treatment of erysipelas, it will be perceived, that there is a total abandonment of governing principles. No allowance is made for its being idiopathic, or symptomatic; for its extent; for its location; for the age of the patient, or under what circumstances of accommodation he may be in—yet each of these must influence, or will regulate, the treatment to a certain extent, in the hands of every judicious practitioner.

686. In the idiopathic form, when the extent and degree of the inflammation is not great, especially if the patient be young, and vigorous, and the location, is any other part than the extremities, and this attended by little or no fever, the treatment should not be the same as where the reverse of all this obtains. For in the first instance, an antiphlogistic regimen, a saline cathartic, and the application of dry flour, with confinement to the house, will frequently relieve this inflammation. Or, under the same circumstances, except an increase in the severity of symptoms, blood-letting may be necessary. But when the contrary of all this happens, how different must the treatment be. Under these opposite conditions, the most watchful attention may be required, that depletion may not be carried beyond its proper bounds; nay, it may be even improper to draw blood, even in small quantities. It is therefore evident, that nothing can be more uncertain, if it even fail to be mischievous, than a common routine practice—or in other words, prescribing for the name of the disease, without regarding the state of the system. We will therefore say a few words upon the subject of the several remedies most commonly employed in erysipelas.

* Medico-Chirurgical Transactions, Vol. XIV. p. 1.

1. *Of Bleeding.*

687. In treating of the several general remedies in familiar use in erysipelas, it is well to premise, that we must be always understood to refer to the idiopathic form of this complaint, unless the contrary be expressed.

688. Of the use of the remedy now under consideration, much diversity of opinion has existed; while some laud it as highly useful, others condemn it as decidedly injurious—now, perhaps both of these opinions were right, as regarded the practice of those who had thus treated erysipelas; because, in the first instance, it was resorted to under circumstances warranting its employment; while in the second, it may have been used, when every consideration of the state of the system would have forbidden it. And these opposite conditions of the system may have depended upon age, period, and force of the disease, constitution, or epidemic influence. That bleeding shall be useful, it is required that the pulse indicate its employment by its force, frequency, and hardness; and its repetition must depend upon the continuance of sthenic excitement. Sydenham, Vogel, Cullen, and Lawrence, all agree that the blood exhibits when drawn the inflammatory character.

689. Where the system is highly excited, especially if any viscera become secondarily affected, and the pulse in the state just described, we should draw blood, be the *period* of the disease or the age of the patient what they may; with this reserve, however, that very old people, or very young children, will not bear the loss of the same quantity of blood at once, though they may its repetition, with decided advantage—but this, the pulse and other symptoms must determine. We are persuaded, that nothing diminishes the excitement of the system so promptly, or so efficaciously, as the abstraction of blood, whenever the disease is sudden in its appearance, rapid in its progress, and threatening in its aspect; for if the excitement of the system be not promptly diminished, the inflammation may speedily terminate in gangrene.

690. We are aware that many think this reduction may be more safely, and as speedily effected by purging; but this is certainly not agreeable to our experience, though we place much reliance on this mode of evacuation, where the system is not highly irritated, the stomach and bowels not implicated, and the progress of the disease rapid.

691. The disposition manifested by the aggravated form of erysipelas in hale plethoric habits, to terminate in gangrene, should always keep us upon the alert, that this does not take

place by employing a temporizing plan, or from an apprehension that depletion will but hasten this event.* It is true, this has been asserted, and we have no doubt truly, in some instances. But does it follow that this must always happen, as seems to be insinuated by some? Certainly not. It is the adoption of an unvarying routine practice, and not a discriminating mode of treatment, that has led to this erroneous conclusion. If a correct estimate had been made of the powers of the system, no such event could have happened from such a cause. For Mr. Hunter happily thought long since, that gangrene is frequently the result of excessive action; and to prevent it from taking place, that this excess of action must be reduced; and that for this purpose, nothing was so effectual as the abstraction of blood. Gangrene, it is true, may also take place, from a loss of vascular power; in which case, blood-letting would but hasten it; but let it be remembered, that blood-letting is not indicated in this instance; and to employ it would be an error of judgment, and not a proof, as is assumed by such as have committed the error, that blood-letting is always, or even most commonly improper, in erysipelas. We should therefore always draw blood when the force of the pulse justifies its loss; but where the arterial power is feeble and languid, it should never be resorted to. The state of the pulse, therefore, must ever regulate the employment of blood-letting.

2. *Of Leeching.*

692. The propriety of using leeches in erysipelatous inflammation, is even more doubtful than blood-letting. On this part of practice, the experience of this country is perhaps not very ample, since so much is feared from the bite of the leech itself, that they are rarely resorted to. But if we appeal to the experience of the continent of Europe, and particularly France, we shall find sufficient evidence of their usefulness, to justify their employment here. Indeed, Dr. Neil has furnished us with several well-marked cases of erysipelas, in which leeching was a part of the treatment, and in which they appear to have rendered very important aid; and as far as these cases go, seem to establish both their utility and safety.

693. Leeching in erysipelas must be directed by the same general rules as govern it on other occasions; namely, after the pulse has been sufficiently reduced by bleeding from the arm, if

* Dr. Fordyce says, "there are many practitioners in this country who still adhere to the treatment of erysipelatous inflammation and those of the mucous membrane, when pure, by bleeding and other evacuations, which *I have always found hurtful.*"—*Transactions for the Improvement, &c. Vol. I. p. 293.*

the state of the system had required it, and to have a sufficient number applied to make a decided impression upon the parts surrounding that to which they have been applied. The propriety of ordering them upon the inflamed surface is perhaps not altogether established; at least we have never pursued it ourselves, having always preferred their being attached some distance from the diseased spot. We believe the method recommended by Broussais to be still better; namely, having them spread over a considerable surface two or three inches from the affected part. It has been feared that leeching might produce metastasis; but Broussais entertains no such apprehension. And a reference to Dr. Neil's cases will abate our fears, when these animals are applied to the diseased surface.

694. Perhaps it might furnish some practical guide for the use of leeches, did we attend to the exciting cause of erysipelas; thus, if it followed any lesion of the skin, it might not always be considered as absolutely necessary to have recourse to them, unless the inflammation were extensive and threatening; in which case, it might be best to brave the consequences of the bites of the leeches, rather than to encounter the consequences of an extensive and destructive inflammation.

3. *Purging.*

695. In cases of pure idiopathic erysipelas, the utility of purging in young and vigorous habits, cannot be questioned; nor is it doubtful to a certain extent in aged and debilitated constitutions, when the bowels are costive and very tardy. We therefore never hesitate to give saline purgatives under the first circumstances; but we prefer the castor oil, or small, but repeated doses of calomel in the latter, when the stomach will not receive the oil. We also give calomel to very young children in preference to the saline purgatives, as they are very difficult to administer in any profitable quantity.

696. The utility of purgatives is perhaps most evident in the cases in which erysipelas attacks the face and head; as in these cases, delirium seems to more certainly attend, than when the inflammation is located on the body or extremities; and free discharges from the bowels, appears very constantly to relieve the brain, when in a state either of congestion or of inflammation.

697. When, however, erysipelas is purely sympathetic, the propriety of purging must be determined by the nature of the disease, of which it has become a symptom—thus, we should forbear active purging, when gastric or intestinal irritation were present; and it certainly would avail but little, when a pneumonic disease, was the original affection; for, as the lungs possess a

circulation proper to themselves, they are comparatively but little influenced by operations upon the intestinal canal. But in every condition or state of erysipelas, the bowels should not be permitted to remain confined; the proper mode of obviating this, either by gentle laxatives, or by mild enemata, must be left to the judgment of the physician.

4. *Blisters.*

698. We believe that Ambrose Paré was the first to employ blisters upon the inflamed surface in erysipelas; but the practice, if it ever was current, soon fell into disuse, and would perhaps have remained so, but for the happy revival of it by Dr. Physick. Preposterous as this remedy may appear at first sight, it is one, nevertheless, of the greatest efficacy and certainty, when the spot for its application will permit its use.

699. When the application of a blister is determined on, the plaster must be of such a size as will rest with certainty upon the surrounding portions of the sound skin. When this becomes well vesicated, the plaster is to be removed, and the part treated, as if it were a common blister. It is, however, essential to the success of this remedy, that the precaution just suggested, of making the plaster of such size as shall occupy portions of the sound skin, be strictly adhered to.

700. In idiopathic, as well as in symptomatic erysipelas, the effect of a blister is sometimes truly surprising; and, whether either of these be looked upon as simple, or phlegmonous, the utility of the blister is equally obvious, and should therefore never be neglected when the location of the inflammation will permit its application. We have sometimes surrounded, instead of covering the diseased surface, with the happiest effects; and we would advise this method, when the cuticle has pretty generally separated from the skin, and the inflammation continues to progress.

701. Mr. Lawrence informs us, p. 61, that "the application of blisters to the inflamed surface, employed in France, has been sanctioned by the high authority of Dupuytren. The phlegmonous, and the erratic species of the complaint, more especially the latter, have been thus treated." Rayer and Sanson speak unfavourably of the practice. Mr. Lawrence says, "I have tried this treatment three or four times in simple erysipelas of the extremities, applying the blister on the boundary of the inflamed and sound parts, so as to cover an equal portion of each. The inflammation stopped in these instances; but as other means were employed at the same time, I could not determine how much of the benefit was due to the blister, which, however, did not pro-

duce suppuration, nor any other unpleasant effect." Mr. Hutchinson speaks favourably of the effects of blistering in one case—it seems to be the only one in which he ever saw this remedy employed.

5. *Mercurial Ointment.*

702. It does not unfrequently happen, that the seat of inflammation is such, as to prevent the application of a blister. Under such circumstances, we have frequently experienced the most decided and prompt advantage from this ointment, and did it not sometimes salivate, it might be looked upon as one of the most certain of the external applications. But notwithstanding this obvious, and serious disadvantage in some instances, there are others, in which it should not be regarded; for it is of much less consequence than the formation of large abscesses, and extensive sloughings, to which this disease so frequently tends, especially in hospital practice, and in enfeebled constitutions. In every threatening case of this kind, we think we derived the greatest benefit from first blistering the part, and then dressing it with mercurial ointment; and notwithstanding a very large surface was for a number of days covered with this ointment, no salivation followed its use, though the amendment was much more rapid than the extent of the disease would have led us to anticipate—but it must be confessed, in two other instances, and these of minor consideration, this unpleasant consequence followed, though not severely in either.

703. We use the ointment in different manners in the several conditions of the inflamed part. First, when the part is inflamed, but not vesicated, we cause the whole of the inflamed surface, together with the surrounding portions of the sound skin, to be kept constantly covered with the ointment, which is to be washed off every twelve hours, and fresh ointment made to supply its place—fine soap and tepid water is the best things to remove the encrusted ointment.

704. Second. Where the part is vesicated, but the vesicles remain unbroken. In this case we cause the vesicles to be carefully opened, and the ointment used as above directed.

705. Third. When the vesicles have opened spontaneously, and formed a crust upon the surface, but where the inflammation extends beyond the vesicated part. In this case we direct the ointment to be spread upon the inflamed surface only, and upon the contiguous sound skin.

706. Fourth. Where parts have proceeded to suppuration, but portions of the surrounding skin are nevertheless inflamed. In this case we open the collections of matter as early as possible, and then apply the ointment to the margin as just directed.

707. Such is the efficacy of this application, that in moderate cases it almost immediately arrests the further progress of the disease. In this, however, all do not agree; or more properly, perhaps, it is denied that the mercury has any agency in the melioration of the symptoms. Dr. Colhoun says this application "is valuable, but I have ascertained its usefulness to depend upon the lard, and not upon the mercury."* How the gentleman discovered this, we are not informed; but it certainly does not correspond with one very satisfactory experiment we made with a view to test this assertion. Mrs. J., aged thirty-five years, of nervous temperament and sedentary habits, was attacked with an erysipelatous spot upon the left cheek, about the size of a dollar. This was first perceived in the evening, and by next morning it had spread to the other side of the face, completely involving the nose, eyelids, and upper lip. This appeared a most favourable opportunity to test the comparative efficacy of the mercurial ointment and the simple lard. We accordingly ordered one side of the face to be covered with the mercurial ointment, and the other with the lard. On our visit next day we were at no loss to determine their respective merits; but we persevered in the applications, and at the end of five days the part in which the mercurial ointment was used did not vesicate, and was nearly well, while that on which the lard was used vesicated and spread, and was at last relieved by the mercurial ointment. This, we confess, is a solitary case; but the experiment we have no doubt would very constantly result in the same way, were it repeated ever so often.

708. To us it is a matter of surprise, that it should have been discovered at this late day, that all the writers almost who have treated of erysipelas for at least a century, have been in error respecting the use of fatty substances in this disease. Heister forbids them; he says, "fat and oily things should be cautiously avoided;"† and we could quote much weighty authority against the use of "fat and oily substances alone"—but they may be all wrong, and the point must be settled by future experience.

6. *Of Bark.*‡

709. Of this substance a very few words will be sufficient. We

* Gregory's Practice, Vol. I. p. 515. Note.

† Heister's Works, Vol. I. p. 194.

‡ "Medical practitioners in general are anxious to begin the strengthening plan; they seem to have the fear of debility constantly before their eyes, and lose no time in directing the employment of bark, and recommending animal food with beer or wine. In this way relapses are frequently produced; the inflammation and fever are renewed, further local mischief is caused, and recovery is retarded."—*Lawrence on the Nature, &c. of Erysipelas, Med. Chir. Transactions, Vol. XIV. p. 59.*

have never employed it but where the suppurating surface was large; the discharge great, and of an unhealthy quality. In such cases the bark is highly useful as a tonic, but not as a specific, in erysipelas. It will perhaps be asked, how it has received so many encomiums from several writers in this complaint—the answer we believe is easy; it has been resorted to when the circumstances of the system required a tonic plan of treatment, as has been partly explained already. Or, it may have early required the use of the bark, from its connexion with some other disease, in which the state of the system needed its exhibition; or from possessing some epidemic peculiarity, foreign to its usual character. In a word, bark has no other pretension to efficacy in erysipelas, than the other forms of phlegmasia.

710. As a general rule then, in the treatment of erysipelas, we must constantly endeavour to procure resolution, as its suppurating is always attended with more or less inconvenience, if not with danger. And that when this disease produces great cerebral disturbance, the condition of the brain and its appendages should elicit our attention; for then the erysipelas becomes of secondary consideration.

711. When this affection is symptomatic, the disease by which it was produced should constantly claim our attention; for it would be vain to attempt the destruction of erysipelas, while the original complaint continued in full force. Yet the external means recommended above may be resorted to with advantage, provided we do not lose sight of its cause.

7. *Incisions and Puncturing.*

712. Mr. Lawrence recommends in warm terms, incisions in the phlegmonous erysipelas; he declares “the most powerful means of arresting the complaint is by making incisions through the inflamed skin and the subjacent adipose and cellular textures, which are the seat of disease. These incisions are followed very quickly, and sometimes almost instantaneously, by relief, and the cessation of the pain and tension; and this alleviation of the local suffering is accompanied by a corresponding interruption of the inflammation, whether it be in the stage of effusion, or in the more advanced stage of suppuration and sloughing. The redness of the skin is visibly diminished during the flow of blood from the incisions; in twenty-four hours it has usually disappeared, and the skin itself is found wrinkled from the diminution of the general inflammatory tension.”

713. “The immediate relief, although very desirable to the patient, is however of less consequence than the decided influence of the practice in preventing the further progress of the dis-

order; and this important result has never failed to occur, within my experience, when the case has been a proper one for the practice, and the state of the patient has admitted of its being fairly tried." "The treatment by incisions is suited to various stages of the complaint; but it is employed to greatest advantage at the beginning, since it prevents the further extension of inflammation, and the occurrence of suppuration and sloughing. The redness and swelling gradually subside; the surface of the cut granulates, and it heals rapidly. At a more advanced period, the incisions limit the extent of suppuration and gangrene; and at a still later time, they afford the readiest outlet for matter and sloughs, and facilitate the commencement and progress of granulation and cicatrization. When the matter has been fully discharged, and the sloughs, whether of the skin or cellular membrane, have separated, a healthy granulating surface is left, and no great difficulty is experienced in effecting cicatrization, unless the destruction of the skin should have been very extensive, when the cicatrix forms slowly, and is liable to give way again."

714. "To preclude the possibility of misconception on a practical point of so much importance, I beg to observe that I do not advise incisions in erysipelas generally, but confine their employment to cases of the phlegmonous kind."

715. "The limbs, especially the lower, are the most frequent seat of the affection, which is at least very uncommon on the trunk.* After the incisions have been made, the part may be covered with warm fomentation cloths until the bleeding has ceased, when a warm bread and milk poultice may be applied. If discharge should not soon take place from the wound, it must be dressed under the poultice with the yellow basilicon ointment, or with some other stimulant. When suppuration has already occurred, the matter finds a free discharge at the incision; large portions of the cellular membrane often slough, and come away with copious discharges of matter, and it is sometimes necessary to extend the incision, in order to promote their separation. When this is at an end, and more particularly when the skin has been extensively detached by sloughing of the cellular membrane, pressure by bandage is very serviceable in promoting the healing process."

716. "The incisions, when made during the existence of active inflammation, are followed by profuse bleeding, both from arteries and veins, which probably has an important share in ar-

* We might insist on this fact, as corroborative of the distinct and independent natures of the phlegmonous and erysipelatous inflammations; since the "trunk" is as liable to phlegmon as the extremities.

resting the inflammatory disturbance. The benefit, however, cannot wholly be ascribed to this cause, for it takes place even when the loss of blood is much less; and it is so immediate, that we cannot refer it to the suppurative process which afterwards occurs in the surface of the wound. The relief has been ascribed to the removal of that tension which always exists in a greater or less degree; we observe, indeed, that the edges of the wound usually gape asunder, and that the surrounding skin not only loses its deep red colour, but soon becomes wrinkled on the surface; two changes which sufficiently explain the great and sudden benefit usually produced by the incisions."

717. "As the free bleeding from the incisions is often of great advantage in relieving the overloaded vessels, and arresting the inflammation, it need not be checked, so long as the pulse is unaffected by the loss of blood. But the great extent to which the hæmorrhage may proceed, renders it necessary that we should act very cautiously, especially in elderly persons, or in those whose strength is already impaired by the disease or previous treatment. The patient should be carefully watched in such cases, until the bleeding has ceased. Should it be necessary to stop the further loss of blood, this may be readily accomplished by tying any bleeding vessels, by placing the limb in an elevated position, or by pressure."

718. "The incision should divide the skin and the cellular texture down to the fascia; it is not necessary to penetrate the latter. A double-edged bistoury is the most convenient instrument for this purpose."*

719. As we are desirous of communicating the various modes of treating this formidable disease that have been found most successful, we are certain we shall not be blamed for furnishing the above long extract, as well as laying before the reader the modes pursued by Dr. Dobson, and Mr. A. Copland Hutchinson, both men of distinguished professional reputation.

720. Dr. Dobson says, "in regard to the nature of the erysipelas in which I use the punctures, I answer in all cases, whether simple, traumatic, or phlegmonous; the number of punctures I make at any one time, varies according to the extent of the disease, but is rarely under ten, and seldom exceeding fifty; the depth and extent of each puncture vary also, according to circumstances, being made deeper when the parts are more tumid, but more superficial when the tumefaction is not so great; from two to four-tenths of an inch may however be considered the proper answer to that part of your inquiry. I repeat the

* See Observations on the Nature and Treatment of Erysipelas, by W. Lawrence, Esq. Medico-Chirur. Trans. Vol. XIV.

punctures to the number and extent required, mostly twice a day, and often in bad cases, three or four times in the twenty-four hours, and in the whole course of this practice, which has often been resorted to by me in several hundred cases, having adopted it more than a dozen years ago, I have never seen any bad consequence resulting from its employment. The quantity of fluid, (for it is not blood alone, but blood and effused serum,) which these punctures discharge, although sometimes considerable, need never create any alarm, for however freely it may flow at first, it gradually diminishes, and soon spontaneously ceases. I use these punctures in every part of the scalp or face, body or extremities, and never more freely than about the eyelids, and I have often found a patient with both eyes closed, which by freely puncturing he has been able to open in a few minutes; and what will be found not less true, than it may appear surprising, these punctures mostly heal in a few hours, and never entail any material marks upon the patient!"

721. "Where puncturing has been practised from the first appearance of the disease, suppuration rarely takes place, and I have always observed that it diminishes the extent of that result, even in those cases which have existed for some days before it has been resorted to; but when matter does at any time form under the skin, I let it out without delay wherever I feel it; but I think in those cases the integuments are more preserved by making several small openings, than by one large incision, and the matter is quite as well evacuated."*

722. Mr. Hutchinson is also a strong advocate for free incisions in the phlegmonous erysipelas; he says, "these incisions may be made about an inch and an half in length, from two to four inches apart, and varied in number from four to eighteen, according to the extent of surface the disease is found to occupy." He recommends these incisions to be made in the early part of this disease; declaring they prevent extensive suppuration, and sloughing, as well as arrest the progress of the disease. In this country, this mode of treating erysipelas, we believe has not been attempted to any extent; but we are of opinion, that every reliance is to be placed upon these operations, as their authors are men of the highest respectability. The practitioner has his choice of three modes of operating, when the disease is either too extensive or too violent to be subdued by the antiphlogistic mode of treatment, or by the other means recommended as adjuvants to this plan.

* See Letter to W. Lawrence, Esq. F. R. S. on the Treatment of Erysipelas by Numerous Punctures in the Affected Part, by R. Dobson, M. D. &c.

8. *External, or Local Applications.*

723. This class of remedies is very numerous, but very insignificant, to say the least of the generality of them. We have but little opinion of them if we except blisters, and mercurial ointment. In the early, or erythematous stage, if we may so term it, we have thought that the camphorated spirit has been occasionally useful, but never efficacious in our hands. The saturnine lotions we have thought decidedly injurious. Dry flour has frequently relieved the itching and burning when it has been applied before vesication had taken place; but it should never be used after. The watery solution of opium is highly praised by some, but of this we have no experience.* And lately Dr. Fontaneilles has recommended a solution of the tartrate of antimony in the proportion of a drachm to a pint of water as very efficacious in this disease. He directs no precaution against its admission to a wounded surface when inflamed. He also commends it in pruritus, dartres, and lumbago.

CHAPTER VII.

PSORA, OR ITCH.

724. This affection may be considered strictly, cuticular; its irritation never rousing the circulating system into action, however extensive the surface may be, that is infected. It is generally communicated by infection; and the virus by which it communicates itself, is supposed by many, to contain animalculæ. But Dr. Adams in his treatise upon "Morbid Poisons," strongly inclines to a disbelief in these animals—nay, in a disease, with which he compares the itch, he founds one of his distinctions upon the vesicles in "itch" containing no worm; while in the other, they were palpable. Contact, or even wearing a garment after an infected person, is generally sufficient to communicate the disease. It is however declared by some, that the "itch" may be generated by impure air, unwholesome food, or

* This solution is made by dissolving four grains of opium in eight ounces of water, and then adding ten grains of the acetate of lead; the part is to be kept constantly moist with it. Dr. Peart recommends a drachm of the sub-carbonate of ammonia, and as much superacetate of lead, dissolved in a pint of rose water.

a neglect of personal cleanliness. Location is even said to generate it—hence, the cold mountainous districts of Scotland, are charged with generating and perpetuating it. There is not in our opinion, sufficient evidence, that the mere absence of cleanliness will produce the disease, however great may be its instrumentality in aggravating, and perpetuating it.

725. This disease almost always first shows itself in places in which the cuticle is not very dense—as between the fingers, the wrists, the bendings of the arms, the hams, &c. The first symptom is slight vesications or pustules upon the parts just indicated; this is soon followed by intense itching, which, when indulged in, breaks the little vesicles, and spreads the contaminating virus to the skin immediately around them, and thus extends the disease even over the whole body, if permitted to run an undisturbed course. The itching is most troublesome at night, after the patient becomes warm in bed; a circumstance that may help our diagnosis, as well perhaps as offer an argument in favour of the animalcular origin of this disease. For, the itching must necessarily be owing to irritation; which will of course be commensurate with it; while the irritation may depend upon an increase of vigour in the animalculæ, from the additional warmth of the bed-clothes, &c.—hence, perhaps the selection of such parts of the body, as preserve their temperature, the most uniformly—and such are the parts, generally infected, by itch.

726. Systematic writers make several varieties of itch; as—*Papularis*, or rank itch.—*Vesicularis*, or watery itch.—*Purulenta*, or pocky itch.—*Complicata*, or complicated itch.—*Exotica*, or mangy itch.

727. There is no practical benefit to be derived from this enumeration; therefore, we shall not insist upon these distinctions; especially, as Dr. Good, who has defined each with some care, assures us, “that all these affections are not distinct species;” for that, “under different conditions of the skin, every variety, even the mangy itch itself, will produce every other variety, while all of them coexist, and are destroyed by the same means.” *Study of Med.* Vol. IV. p. 429.

728. This disease is of easy management; especially in the commencement, and where its localities are few, and small. We have very often removed this complaint, particularly when confined to the hands and wrists, by the following solution:—

R. Hydrargyri oxymurias,

Muriat. ammon. - - - - - āā. gr. x.

Aq. distillat. - - - - - ʒij. f. sol.

The pustules or little sores, are to be washed with this solution morning and evening, until irritation, or slight inflammation, is

induced—then desist until the inflammation goes off; and if the disease be not cured, let the application be renewed under the same restriction, until it disappear. It is best to open each vesicle by the point of a needle, before the solution is applied. It is most conveniently applied by means of a small piece of fine sponge.

729. But should the disease be more extensive, mercury or sulphur in ointments, had best be used. Mercury, in the form of the white precipitate, where secrecy is required, is perhaps the most certain, and convenient mode of using this substance.

R. Hydrargyr. præcip. alb.	-	-	-	-	℥ij.	
Ess. Lemon.	-	-	-	-	gut. xl.	
Adeps præparat.	-	-	-	-	℥ij.	M.

The parts to be rubbed with this ointment for three successive nights—the skin must then be well washed and cleansed, by a pretty strong solution of soap and warm water. Should the disease not be removed, let the ointment be repeated, until it succeed. But if the disease be inveterate or of long standing, we believe there is no remedy so certain as sulphur in combination with the muriate of ammonia—this has never failed us, however extensive, or of how long a standing it may be. It very rarely requires more than two applications to effect a cure.

R. Flor. sulph.	-	-	-	-	℥ij.	
Pulv. muriat. ammon.	-	-	-	-	℥ij.	
Ol. Ment hæ,	-	-	-	-	℥j.	
Adeps præparat.	-	-	-	-	℥iv.	M.

The whole body is to be smeared well with this ointment in a warm room if the weather be cold, just before going to bed, and the patient to sleep with the ointment upon his skin—in the morning it is to be entirely discharged from the skin by means of soap and water. The patient is now to put on clothes not used previously; and must not be allowed to sleep in the sheets before employed. This process must be repeated on the second night, as before directed; this must be followed by liberal ablutions next morning, with the same attention to fresh clothes. We have never known this plan to fail. In the ointment just recommended, the offensive smell of the sulphur is overpowered by the oil of mint.

730. Dr. Jadelot of Paris recommends the sulphuret of potass in the form of a bath; to be repeated daily for a few days. He orders four or five ounces of this substance to about twenty gallons of water heated to 98° Fahrenheit, and the patient placed in it for a short time. While Dr. Gale lauds fumigations, prepared by throwing a mixture of sulphur (half an ounce) and nitre (two

drachms) upon hot coals in a warming pan, and used in the ordinary way of warming a bed. The patient gets into bed naked, and the fumes are carefully kept in by tucking the bed-clothes. This must be repeated nightly for a week.

CHAPTER VIII.

DISEASES OF THE BRAIN AND SPINAL MARROW.

SECT. I.—PHRENITIS.

731. By this we understand an inflammation of the brain or of its appendages. So far as we are at present acquainted with this disease, and its symptoms, we are not able to say which portion of the cerebral system is particularly affected, though post mortem examination, declares that either the substance of the brain, or its coverings, or both may be involved. Much pains has been taken by late pathologists to distinguish the one affection from the other; and some have thought they have been able to do so, and have enumerated a number of symptoms, which purport to point out the particular structure that is affected; but there is much doubt upon this point; and fortunately in a practical point of view, it is of very little importance, since the knowledge of the existence of either, would not influence our therapeutical views.

732. Thus Dr. Fordyce says, “if the meninges are affected, the pain is acute; if the substance only, obtuse, and sometimes but just sensible.” *Practice of Medicine*. Dr. Cullen observes, “I am here as in other analogous cases, of opinion, that the symptoms above mentioned of an acute inflammation, always mark inflammations of membranous parts; and that an inflammation of parenchyma, or substance of viscera exhibits, at least commonly, a more chronic inflammation.” There is much reason to challenge the truth of these opinions; they certainly fail in pneumonia, and we believe we could prove they do not hold good in either the brain or its appendages, as we shall have occasion to say in its proper place.

733. We shall therefore comprehend under the term phrenitis the inflammation of the substance of the brain, or that of its appendages, or both; as it is extremely doubtful whether we are in possession of any pathognomonic sign for either. Mr. Pinel*

* *Nosographie*, Vol. II. p. 180.

censures Sauvages, for the confident manner in which he details the symptoms belonging to each membrane of the brain, and the brain itself when labouring under inflammation. He declares this decision altogether premature; and thinks with our present stock of knowledge, we have no right to make a distinction between the one part and the other when in a state of phlogosis. We are decidedly of this belief; for we have never been satisfied that any peculiar cognizable circumstance marked the seat of the inflammation.

734. As to the marks laid down by some authors, we are certain they cannot be relied upon—more especially those which consist in the distinction of the quality, if we may so term it, of the attending pain. Acute and obtuse pain, the chief distinctions, are easily confounded, and we are certain they cannot be relied upon; for what, in a person with even a moderately clear intellect, would be called acute, might by another receive the epithet, obtuse; and it becomes still more uncertain, when the operations of the mind are disturbed, by an overwhelming inflammation of the organ of intellect.

735. In treating this subject, we shall at this time confine the consideration to the idiopathic form of this disease; at least as far as circumstances will permit us to distinguish it from the symptomatic. At the bed-side this is not so easy as it might at first appear to be. Acute diseases of other viscera are very frequently attended with intellectual derangement—delirium is common to most fevers; the stomach, the intestines, the liver, the lungs, when inflamed, may, produce severe or mild mental aberrations. In one of the most furious cases of delirium, I ever witnessed, and which bore the most unequivocal marks of cerebral inflammation, Dr. Physick and myself found the brain upon examination to be healthy, while the stomach exhibited the highest grade of inflammation; while on the other hand, Willis, Bonetus, Sarcone, &c. have observed inflammations of the brain, without delirium having preceded death.* Stoll† has seen the brain and its membranes, inflamed, gangrenous, together with abscesses, in idiopathic phrenitis. Morgagni‡ has seen a true phrenitis, without leaving any marks of inflammation in either the brain or its appendages.

736. These are curious, as well as important facts; and should teach us caution in deciding upon the *seat* of a disease, especially where the body may be inspected after death; and also should convince us, that there are no absolutely certain signs by which the condition of the brain or of its appendages can be recognised;

* Pinel. Nosographie, Vol. II. p. 183.

† Letter VII. Art. VI.

‡ Ibid.

for however advantageous a distinction might prove, it can rarely be made, but by opening the head.

737. The predisposing causes of phrenitis are pretty generally the same as those which give rise to the other phlegmasiæ. The exciting causes may be insolation; immoderate mental excitement, as anger; the too free use of ardent spirits; errors in diet; metastases, as of gout, rheumatism, erysipelas; cuticular affections, &c.*

738. The premonitory signs of phrenitis, will vary both in intensity and duration, as the susceptibility of the body may be greater or less, or as the force of the exciting cause may be stronger or weaker, or perhaps as it may be one or other portion of the brain, or its appendages that may receive the shock, and perpetuate the impression. For the most part there is head-ache, and its seat may be general, or confined; a sense of fulness, particularly if the head be placed a little depending, or suddenly moved; a throbbing within the cranium, communicating the idea that the pulses within the cranium can be heard. Disturbed sleep; startings; grinding of the teeth; frightful dreams; irascibility; unusual gaiety; redness of the eyes; face tumid and flushed; easily shedding tears, or perhaps they flow involuntarily; sensation of cold; extreme sensibility to light or to noise; bleeding at the nose; agitation; limpid urine; costiveness, &c.

739. In the idiopathic form of phrenitis, the pulse betrays less disturbance than really exists; and this circumstance may serve with others to point out the independent nature of the affection. For when this disease is symptomatic, the pulse always partakes of the character it assumes in the individual inflammation which preceded the affection of the brain, and with which it is sympathizing. Dr. Wilson Philip says, and in this we fully agree, that "the hardness of the pulse is more remarkable, (in phrenitis,) than in synocha; sometimes it is both small and hard, and sometimes irregular; the pulse in synocha is always strong, full, and regular."†

740. In no acute disease of the system, is there less evidence in some cases of local disturbance, than in inflammation of the appendages of the brain, or of even the substance of the brain itself. We have lately witnessed very remarkable derangements of this kind in two children, who died unquestionably from these affections, though in one the disease followed a mild case of measles, and the other a violent attack of pneumonia. In neither instance, was there the slightest delirium; in one, there was a

* We do not enumerate among the causes of phrenitis, certain mechanical impressions or forces, such as blows, falls, or wounds of various kind, as the disease arising from such accidents, properly belongs to the care of the surgeon.

† Symptomatic Fevers, p. 81.

slight strabismus; yet in both, there were marks of high previous inflammation. In one, at least three ounces of serum escaped from between the dura mater and the surface of the brain; the vessels of the brain itself were much enlarged; and its substance somewhat softened. In the other, there was less serum, but a purulent substance spread itself over the whole of the superior surface of the brain, dipping between its hemispheres, and was even found at its base. The whole mass of brain, was of uncommon softness. In both instances, the dura mater adhered so firmly, as not to be separated without tearing. One case terminated by convulsions; the other with much apparent agony, but with perfect consciousness.

741. Pinel says, "that coma may attend a true inflammation of the brain, without being preceded by phrenitis; in proof of which I will relate two instances in two children, one aged seven years the other eleven. On examining the first, the tunica arachnoides was found thickened in several places, and spread over with granulations; it was red, and adhered to the dura mater, and to a certain extent, a layer of albuminous matter was to be seen. In the other child, the inflamed condition of the tunica arachnoides was equally remarkable; it also adhered to the dura mater, and was occupied by a similar coat of albuminous matter. The right lateral ventricle was distended by a great quantity of serum."³*

742. M. Harpin has run a long parallel between the symptoms of phrenitis and cephalitis; to which the author of the article "Phrenitis," in the *Dict. des Scien. Med.* M. Vaidy, makes the following judicious remarks: "After reading this parallel, nothing appears to be easier than to distinguish cephalitis from phrenitis; but unfortunately it is not so at the bed-side: for there is no characteristic symptom to distinguish these affections from each other, and they may be so entirely attended with the same signs, that experienced practitioners have mistaken one for the other."

743. The progress of this affection is no less constant than rapid; augmenting in intensity, until it is about to terminate favourably or fatally. It has however its moments of remission and of exacerbation, like any other phlegmasia; and these may be more or less regular. A treacherous calm sometimes takes place, only to be followed, by highly exasperated symptoms—even furious delirium. And such is the severity of the inflammation, and the importance of the parts involved in it, that it runs its course in a few days, if not arrested by prompt, and properly adapted treatment.

744. It has always been looked upon as very difficult, to es-

tablish the diagnosis of phrenitis; especially from that grade of fever called synocha or inflammatory fever. This difficulty consists chiefly in the want of pathognomonic signs for phrenitis; and from synocha almost always being attended by delirium. This however would not create much embarrassment, were the views taken of fever by Dr. Clutterbuck thoroughly established, or were they susceptible of it; as agreeably to him, phrenitis or inflammation of the brain, is the cause of fever, and consequently, it, with all its phenomena, has a phlogosed state of the brain or its appendages for its origin.

745. "Sometimes nausea and a painful sense of weight in the stomach are among the earliest symptoms. In other cases the patient is attacked with vomiting, or complains of heartburn, and griping pains in the bowels. When the reader reflects on the intimate connexion which subsists between the brain and every part of the system, he will not be surprised to find the symptoms attending the commencement of phrenitis so various, and that the stomach should in particular suffer, which so remarkably sympathizes with the brain. These symptoms assist in forming the diagnosis between phrenitis and synocha."*

746. The symptoms just enumerated we think are more common to children or very young subjects, than to adults and elderly people. We have seen in several very strongly-marked cases of this kind, in each of which the disease was supposed to be in the stomach, and to which all the remedies were unavailingly addressed; the post mortem examination proved the seat of the disease to be the brain. Perhaps the most certain diagnostic symptom in this disease, is the terrifying intolerance to light, when this symptom occurs, for it is not always present. We have seen the approach of a candle throw a child nearly into convulsions, and draw from it the most importunate supplications to have it immediately removed. Dr. Philip justly observes, "if in phrenitis we succeed in removing the delirium and other local symptoms, the febrile symptoms in general soon abate; whereas, in synocha, though the delirium and head-ache be removed, the pulse continues frequent, and other marks of indisposition remain for a much longer time, and this serves to distinguish the two diseases."†

747. "The eyes are incapable of bearing the light; and false vision, particularly that termed *muscæ volitantes*, and the appearance of false flashes of light passing before the eyes, are frequent symptoms. The hearing is often so acute, that the least noise is intolerable; sometimes, on the other hand, the patient becomes deaf; and the deafness Saalman observes, and morbid acuteness, now and then alternate."‡

* Philip on Symptomatic fever, p. 79.

† Ib. p. 83.

‡ Ib. p. 80.

748. "As the organs of sense are not frequently deranged in synocha, the foregoing symptoms further assist the diagnosis between it and phrenitis."^{*}

749. The prognostic in this disease must always be uncertain, if not always unfavourable; for when we consider the importance of the parts involved in inflammation, the delicacy of their structure, the great quantity of blood circulating through them, and the quantity required to be abstracted from the system in general before much impression can be made upon the contents of the cranium, and the changes effected in the remaining portion of blood, by the capillaries yielding their contents to the larger vessels after very large quantities have been abstracted, we shall cease to be surprised that phrenitis is constantly a disease of difficult management, and of great danger. Yet these cases are not altogether hopeless. When this disease supervenes to other affections of an acute kind, as gastritis, enteritis, &c. the prognostic is almost always unfavourable, as we have two seats of inflammation now to contend with; and this at a period when the recuperative powers of the system are on the wane, if not very much exhausted. In general, the risk is in proportion to the violence of the symptoms; but this is far from always being the case, as the apparently milder forms have terminated fatally, though not equally rapidly. We have already declared, that this inflammation terminates sometimes in suppuration, effusion, and gangrene; in either of these, the case must be hopeless, though we have no absolutely certain signs that determine either has taken place, though either may be suspected, when coma, paralysis, squinting, or convulsions follow the more acute and violent symptoms. Also, when the skin becomes cold, clammy, or rigid; the pulse creeping, very quick, small and feeble; respiration hurried; preternaturally slow, laborious, or stertorous, we may look upon death being near at hand.

750. As regards the alvine excretions, Dr. Philip says, that "instead of a superabundance of bile, there is sometimes a deficiency of it,[†] which seems to afford a still worse prognosis. The *fæces* being of a white colour, and a black cloud in the urine, are regarded by Lobb as fatal symptoms. The black cloud in the urine is owing to an admixture of blood." "There is often a remarkable tendency to the worst species of hæmorrhagy towards the fatal termination of phrenitis." p. 82.

751. On the other hand, we may regard the following marks as constituting the favourable signs; a generally diffused warmth, without rising to a preternatural heat; warm and extended perspiration; urine depositing a sediment; hæmorrhage from the

^{*} Philip on Symptomatic fever, p. 81.

[†] Desault makes a bilious species of phrenitis.

uterus, the nose, or the hæmorrhoidal vessels in the more advanced period of the disease; eruptions upon the skin, especially of the inflammatory kind; the pulse becoming more voluminous, quicker, or less frequent; diminution of delirium and coma, &c.

752. The mode of treating this disease can almost be deduced from its history—it is essentially an inflammation of a highly sensible and vascular part, the organization of which is quickly liable to lesion, from causes that would scarcely disturb some other of the viscera. It must be evident that our chief reliance must be placed upon the abstraction of blood; and this will embrace both general and local blood-letting.

753. The nearer to the head we can abstract blood, the better; but the most proper place cannot always be commanded, for this would be the jugular vein. There is much difficulty sometimes in drawing blood from the neck—the patient, unless it be a child, will not always submit to it, if he be even in his senses; and if he be delirious, it is almost impracticable. Hoffman and Cullen were both aware of the advantages that would result from drawing blood so directly, and at the same time so suddenly from the diseased part; and it is to be lamented, that their directions to this effect can so seldom be complied with. When, however, this can be done, it is certainly proper in violent cases, to give the jugular the preference. It nevertheless excites much alarm, when proposed, though there is neither disadvantage nor danger, from the operation—we have repeatedly performed it on children for convulsions, with the happiest results; nor have we ever witnessed any inconvenience from after-bleeding, as might reasonably enough be expected.*

754. But whether we select the jugular vein, or take the arm, sufficient quantity of blood should be drawn to produce a most decided impression on the pulse; nay, even to syncope would be desirable in some instances. These effects are best secured by placing the patient in an erect position, and drawing the blood from a large orifice. And this operation must be repeated as often as the symptoms and state of the pulse demand it. In this respect, and indeed in almost all, the treatment must be such as has been directed for fever of a high grade. And it must be borne in mind, that we have other resources in this disease, when the diminished force of the pulse might not justify the abstraction of blood from the arm. The application of leeches behind the ears, and angle of the jaw, or to the temples and forehead, will be found highly useful in the idiopathic form of phrenitis; and if sympathetic, to the part nearest to the affected viscera. If it be gastritis, over the region of the stomach, &c.

* Larrey, however, makes it an operation of difficulty and sometimes of danger. We have never observed either in children, and when the spring lancet has been used.

755. Cupping may also be had recourse to, where leeches cannot be commanded; and the spots selected for their application, should be the same as directed for the leeches. And if neither cupping nor leeching can be done, much advantage may be derived by dividing the temporal artery, by the shoulder of a lancet, or by a scalpel. No difficulty attends this operation; nor is any thing to be apprehended from an artery being cut—a slight compression arrests the bleeding, nor is there the least risk that the bleeding will renew itself.

756. The head of the patient should always be elevated; and water of a low temperature, in a large bladder should be applied to it; but this must be under restrictions similar to those laid down for its use in fever. (See par. 533.) The hair must be shaved off, or cut very close, that the cold may be quickly perceived.

757. It may however be proper to observe, that the propriety of applying ice to the head in cerebral inflammations is questioned by Mr. Costa, in a memoir he read before the French "Academie Royale de Medicine" on this subject. He says, "would we found this treatment, (the application of ice to the head,) on the idea that the inflammation of organs contained within the brain is of a peculiar nature? But MM. Tomasin and Broussais, have sufficiently proved that inflammation wherever situated, and whatsoever its causes, is always the same. Now, then, if cerebral inflammations are the same as phlegmasiæ of other organs, why treat them differently from the others? can we expect to oppose the flow of blood by the intensity of the cold?"

758. The author is of opinion, that by constricting the vessels of the scalp, we force the blood they contain to flow back on the brain. Under this impression, he proposes in idiopathic cerebral inflammations to shave the head, and to cover it with leeches in the course of the sagittal suture, and especially at its posterior extremity. He afterwards covers it with emollient poultices, which are to be renewed when necessary; and if required he also has recourse to general bleedings. On the other hand, if the inflammation be sympathetic with gastro-enteritis, which is frequently the case, especially in children, he directs his treatment to the state of the intestinal tube; unless the affection of the brain greatly predominates; in which case he proceeds as just mentioned.

759. He prefers the sinciput for the application of leeches, because the inflammation of the arachnoid, or encephalitis, usually occupies the anterior regions of the head, and by applying leeches to the sinciput, he unloads the inflamed parts more directly, by acting on the longitudinal sinus, or rather on the veins which discharge themselves into it; and because there exists a sympha-

thy between the skin which covers the splanchnic cavities and this part.

760. In aid of this, the stimulus of heat, light, and noise, must be removed as far as is practicable and proper for the season, and for the purposes of nursing. All conversation, or communications, whether of an agreeable kind or otherwise, must carefully be avoided—in a word, all the directions given for the management of fever in general, must be here put in practice.

761. Purging in idiopathic phrenitis is of much consequence; this should be performed by calomel, in doses suited to the age and situation of the patient; rendered active by an after-dose of the sulphate of magnesia or Epsom salts, or by magnesia, drinking lemonade after it. A free discharge must be maintained, by castor oil, magnesia, salts, either alone, or united. In the symptomatic affection, the purging must be regulated by the nature of the original affection.* The strictest antiphlogistic regimen must be insisted on. (See par. 214, 215, 216.) If the bowels are tardy, as they are wont to be, the operation of the medicines just named may be promoted by enemata of warm salt and water.

762. Blisters as revulsives are highly useful when the system is reduced to the blistering point. (See par. 260.) They should be applied to the calves of the legs, to the inside of the thighs, or to the forearms. We have strong doubts of the propriety of blistering the head—indeed, we are of opinion that it is injurious; to the shoulders, is less objectionable, though not a decidedly eligible spot.

763. Rubefacients may be also advantageously employed, after the circulation has been moderated, and especially when there is a tendency to congestion, as declares itself by an inequality of heat upon the surface, and especially when the feet and legs become cold. Mustard, Cayenne pepper, or the spirit of turpentine may be employed for this purpose; and these may be aided by jugs of warm water, or heated bricks placed near the parts. Pediluvium may also be resorted to, provided the legs of the patient can be made to hang over the edge of the bed, without disturbing him too much, or obliging him to assume a horizontal

* We would direct the attention of the practitioner when he determines on producing catharsis, that it is only in the idiopathic form of phrenitis that this operation can be valuable or sometimes perhaps even safe. For while he may derive prompt and decided advantage from purging in the idiopathic, he may do much mischief in symptomatic phrenitis; especially, when the original seat of disease is either in the stomach or intestines; or if he give in these cases, even the more active or drastic purgatives. In the latter form of phrenitis the milder laxatives should be employed; as castor oil, or weak solutions of the neutral salts; but in the former, from the direct communication of the vessels of the head and the abdomen, we may expect much advantage from the more active cathartics.

position. His drinks should be the same as those directed for fever in general. (See par. 214.)

764. When phrenitis succeeds to the sudden suppression of any accustomed evacuation, as the menses, hæmorrhoids, &c. though it must be looked upon as symptomatic, it will nevertheless require almost always, active treatment. Bleeding, leeching, purging, &c. as already directed for the idiopathic species; and early attempts must be made to recall the habitual discharge.

765. After the disease has disappeared, the utmost caution should be exercised in returning to the ordinary mode of living—a moderate diet should be persevered in for some time after all febrile irritation has ceased, lest the disease be recalled.

SECT. II.—APOPLEXY.

766. This formidable disease early attracted the attention of medical writers; hence, we find it mentioned by almost every one of them from the time of Hippocrates to the present day. And in no other disease, perhaps, have descriptions been so accurate, or so uniform. But notwithstanding this harmony in the history of the symptoms of this disease, its pathology has not been ascertained until within (comparatively) a very short time. Morgagni, and his cotemporaries, were among the first cultivators of pathological anatomy; and the diseases of the head, from their severity and frequency, particularly attracted their attention; especially Morgagni. In his great work, he has left us the dissections of a considerable number of apoplectics, agreeing in detail pretty much with those of later observers, but without being arranged in such order as to enable us to draw any important practical distinctions from the varieties of appearance he discovered in the brain. Extravasations were met with in a great majority of instances, but without his coming to a conclusion that there was any coincidence between the part of the brain occupied by them, and the symptoms that had preceded death.

767. Indeed, the presence of a foreign body within the cavity of the cranium, was held sufficient to account for all the phenomena of apoplexy; and here inquiry appeared to cease, until within a very short period. And it is to Serres that the honour is due, of having first suggested and traced the connexion between the accompanying symptoms of this disease, and the various lesions of the brain and its appendages, which gave rise to them; but of this, more by and by.

768. Several definitions have been given of apoplexy, all of which agree in its principal phenomena, yet no one demonstrating its absolute character, as will be seen as we proceed. Apo-

plexy is said by Dr. Good to consist of "mental and corporeal torpitude, with oppressive, mostly stertorous sleep."* This definition is concise, but fails perhaps in rigid accuracy. Dr. Cooke's is rather more comprehensive, and less objectionable. He very modestly says, "perhaps apoplexy may be thus defined—it is a disease in which the animal functions are suspended, while the vital and natural functions continue, respiration being generally laborious, and frequently attended with stertor."†

769. This disease sometimes takes place so suddenly, as to preclude all cognizable premonition; at others, there may be a short warning; while again, it may advertise us of its approach by a number of well marked and decided symptoms. These different onsets of apoplexy appear to be governed altogether by the condition of the brain itself, or of its meninges at the moment of attack, or a short time previous to it.

770. When warning is given, the following circumstances generally obtain. A sense of heaviness, or weight, attended by pain in the head of less or greater intensity; vertigo, or only a slight dizziness; disposition to sleep; disturbed, and oppressed sleep, or nightmare; involuntary contractions of the muscles of the face, especially during sleep; spasmodic affections in various parts of the body; redness, and fulness of the face; injected eyes; inspiration more deep than natural; indistinctness of vision; ringing in the ears; bleeding from the nose; faltering of the speech, or employing inappropriate words; failure of memory, and diminished sensibility of both body and mind.

771. After these symptoms have continued a longer or shorter time, or sometimes without any discoverable previous intimation, the patient falls prostrate, and lies as if in a profound sleep, but from which he cannot be roused by any excitation. So analogous in appearance is apoplexy to profound sleep, that at first sight it might be difficult to distinguish them, and which led Boerhaave to declare it to be its true image.

772. Stertor is not a necessary attendant upon apoplexy, though it is of frequent occurrence; nor is the patient entirely deprived of all capacity of action, if it be admitted that he is of all sensation—for the application of powerful stimuli will produce contractions of the muscles, though this may not be attended by consciousness. Dr. Cooke says, "in the strong paroxysm, persons are said to be entirely deprived of sensation and motion; but the power of moving is occasionally apparent, and we cannot be certain that the power of feeling in these cases is wholly abolished. I have seen patients in this disease shrink on being

* Study of Medicine, Am. Ed. Vol. III. p. 394.

† Dr. Cooke on Nervous Diseases, Vol. I. p. 166.

cupped, and move their hands towards the head, as if feeling uneasiness there." p. 168. We have repeatedly witnessed the same thing, which has constantly led us to believe that all sensation was not destroyed, as the hand directed to the spot on which the stimulus was applied, cannot be regarded as a mere automatic motion.

773. Dr. Wilson Philip thinks, that the power of the voluntary muscles remains; as he declares he had repeatedly examined the state of these muscles in apoplexy, both in warm and in cold blooded animals, and found their excitability unimpaired. He therefore is of opinion, that it is not their power, but the stimulus which excites them, that is lost in apoplexy.

774. Respiration, for the most part, is much affected in this disease, and seems to be laborious in proportion to the extent of the proximate cause. It is not, however, suddenly embarrassed, as it gradually augments as the disease continues—thus, it is frequently slow and regular in the commencement, though it may be laborious; while towards its close, it may become extremely slow, or very frequent, and irregular. It is said that the danger is in proportion to the derangement of this faculty; and that which is very laborious and irregular may be looked upon as one of the most unfavourable symptoms. It is observed by Dr. Cheyne, that "immediately before death, the respiration is irregular, and is performed not oftener perhaps than three or four times in a minute."

775. This slow and laborious breathing is generally accompanied by stertor. And when the disease is attended by this symptom, both Boerhaave and Portal, consider it in its most aggravated form. There is also a quantity of saliva blown from the mouth in the form of foam, which also marks the intensity of the disease.

776. The pulse is constantly affected; in the beginning it is for the most part slow, regular, full, and hard; but in a few hours, M. Serres informs us, both it and the respiration become much affected. He says, "in a few hours after the invasion, (if the brain have not already suffered laceration on some point of its various surfaces,) the respiration becomes considerably slower than natural. The venous blood thus experiences a mechanical obstruction to its return to the heart, and the latter organ begins to react in proportion; the pulse accordingly becomes hard, and frequent; the artery vibrates as it were under the finger; in short, the action of the heart is quickened in proportion as the respiratory process is retarded." And agreeably to Dr. Cheyne, the irritability of the heart survives the respiration. "Sitting, with my finger over the artery of a person who died of apoplexy, I distinctly felt the pulse beat after the last expiration." (p. 14.)

The pulse in the beginning of the attack, rarely exceeds fifty strokes in a minute.

777. Indeed, in one case, and that slight, as the patient recovered his senses in a short time, the pulse was not more than thirty-four strokes in the minute; full, tense, and equal. We cannot say what was the state of the respiration, as we did not see him until he was able to give an account of himself. The attack was sudden and without warning, according to his own statement—he was suddenly seized while walking in the garden at his country seat, and fell upon the ground. How long he remained in this situation he cannot tell; but it was a considerable time he thinks, by the apparent waste of the day. No one saw him in this situation; after this his head remained giddy and rather painful, especially on the left side.* We saw him for the first time, the day after these events had taken place; he was much weakened; head always slightly painful, and occasionally, considerably so; his breathing pretty free, though the expiration was performed rather suddenly, especially after talking a little. The pulse was at thirty-four at most, occasionally as low as twenty-eight, indeed, a number of times not more than twenty-six strokes in a minute;† there was nothing like paralysis in any portion of the body. Depletion was as frequently employed during the period of three months, and in as liberal a manner, as was consistent with the safety of one, who had exceeded seventy-three years, and who was naturally of a feeble constitution.

778. He gradually recovered nearly his usual state of health; and remained so until a few days over a year from the attack just spoken of. At this period he began to experience a heaviness and occasional pain in the head; his pulse keeping about thirty-two, tense, and full—he lost a few ounces of blood, was purged and kept upon a very abstemious diet for some time, by which means these symptoms disappeared. He remained in this situation for two months, when pretty soon after dinner, he fell suddenly from his chair upon the floor. We were instantly sent

* This gentleman had for three or four weeks, five or six times a day, what he called "shocks," through the brain, especially upon the whole half of the left side. These "shocks" would be both painful and astounding for some minutes together.

† This patient was a remarkably close observer—he very frequently examined his pulse by an accurate stop-watch with a quarter second movement—he recorded all the sensations he experienced, and marked each varying change—he was learned, and very studious, and consequently very sedentary—a very moderate feeder, and never drank any thing stronger than a weak mixture of claret and water, and not much even of that, and this only at his dinner. His bowels always, very regular in their motions; indulged but little in bed, and habitually an early riser—not given to any sudden gusts of passion, and of a cheerful disposition. He had been subject many years however, to a catarrh of the bladder, and slight irregularities in his urinary discharges.

for; but living at a considerable distance from him, three-quarters of an hour had elapsed before we saw him. He was still lying on the floor, with his head elevated; but pale; his mouth drawn to one side; he was senseless. It was stated, that he was slightly convulsed; frothed at the mouth, and snored; his fæces and urine were discharged during the paroxysm.

779. His pulse was twenty-six strokes in the minute, and scarcely perceptible; his breathing not much affected; the skin bedewed with a cold clammy sweat; but little more of the eyes could be seen than the whites; strabismus; and a considerable quantity of a tenacious saliva running from the mouth.

780. We caused his legs to be rubbed with hot brandy and mustard; spirit of turpentine was applied to the region of the stomach, and a number of hot bricks were placed at different parts of the body. Reaction soon after took place; the skin became warmer; the pulse more expanded, but not more frequent; the countenance more composed and less ghastly; the mouth however remained contracted; though the squinting was removed. He became gradually sensible of things around him, though he could not articulate when he attempted to answer any question. He now lost eight ounces of blood from the arm, with marked advantage, as his speech returned while the bleeding was performing. He gradually mended, and went to the country, and while there, was again assailed by similar apoplectic symptoms; these were not of long continuance, or of great severity, but they were followed by a paralysis of the right side. He was cupped, and purged; and in a few days after, was put upon the use of the white mustard-seed, under the use of which, he gradually acquired the use of his arm and leg. His pulse, during the whole progress of this affection, never exceeded thirty-four strokes in a minute, but has been occasionally, as low as twenty-six.

781. This case is remarkable in several of its particulars; first, the mildness of the original attack—the second, being attended, with several threatening symptoms, such as the partial paralysis of the face; the distortion of the eyes, and the loss of speech, all of which disappearing, and the patient regaining, nearly his ordinary health—the third, being followed by a paralysis of one side, without the loss of speech or drawing of the mouth, but above all, the long-continued (nearly two years,) and uniform slowness, of the pulse.*

782. The temperature of the skin is sometimes higher than natural; at other times, it is cold and sweaty—the latter sometimes, profuse, in other instances, a well-marked febrile condi-

* This patient a few months after died while sitting in his chair, almost in an instant.

tion of the system may be observed. Dr. Cooke says that "fever however is not generally mentioned in the history of apoplexy and I believe seldom accompanies it." (p. 173.) We do not ourselves think, that fever necessarily belongs to the history of this disease, but nevertheless we have seen it well marked in several instances.

783. The eyes in this disease, are generally injected, and rather prominent, sometimes they are only half closed, at other times completely shut. The pupil for the most part is dilated, and others greatly and permanently contracted. Dr. Cooke says, "in some instances I have seen the pupils contracted to a point, and a physician of eminence of my acquaintance has likewise observed this appearance of the eyes in apoplexy; yet although all writers on the subject mention the dilation of the pupils, I do not find any one, (Aretæus among the ancients, and Dr. Cheyne among the moderns, excepted,) who has noticed the contracted pupils in these cases." p. 174.

784. The teeth are frequently clenched very firmly together; so much so sometimes as to render it extremely difficult, to get any liquid into the mouth; nor is it unusual in an attempt of this kind, to find it returned by the nostrils.

785. As this disease approaches to a fatal termination, the symptoms become more and more intense—the abolition of sense and motion becomes complete; the pulse becomes weak, very frequent, and indistinct, and these symptoms are sometimes followed by convulsions, which close the scene; at other times, the extinction of life is so gradual, and so tranquil as scarcely to be observed when it takes place. The duration of this disease, will be very much influenced by the force and number of the remote causes; and the extent and location of the lesion they may produce—thus, it may happen in a few minutes or within an hour, or it may persist for days. We agree with a number, who believe that many of those sudden deaths attributed to this disease, depend upon some disease of the heart, or of the large blood-vessels.

Predisposing Causes.

786. Various causes have been assigned as predisposing to this disease; as hereditary transmission by conformation; this by some has been considered as well grounded; Forestus in confirmation of this opinion, mentions a father and three sons dying of apoplexy;* old age is also said to be predisponent to this disease; Rochoux is of this opinion. The translation of gout; the suppression of accustomed evacuations; and the re-

* Dr. Cooke on Nervous Diseases, Vol. I. p. 199.

elling of certain eruptive affections, have always been considered, and with great propriety, as belonging to these causes.

787. But this must certainly be contingent, since we find no age exempt from it. Serres says, "it is an established fact that apoplexies may attack all ages—I have observed them in all the periods of life, from the age of three years, up to decrepid old age."* And Rochoux gives a statement of sixty-three cases, in the following order:—

Age.					Number of cases.
From 20 to 30 years	-	-	-	-	2
30 to 40	-	-	-	-	8
40 to 50	-	-	-	-	7
50 to 60	-	-	-	-	10
60 to 70	-	-	-	-	23
70 to 80	-	-	-	-	12
80 to 90	-	-	-	-	1
					<hr/>
					Total, 63†
					<hr/>

788. This table goes far to prove the accuracy of Hippocrates' statement, that apoplexies chiefly take place between the fortieth and sixtieth years; though not altogether confirmed by the observations of Serres. Rochoux remarks upon these cases, "that there are more people living of the age of sixty than of seventy; but that he can hardly believe that the number is double, yet it is seen, that the age of sixty has furnished almost double the number of apoplectic subjects. Besides, if it be admitted, that there are more of the age of sixty than the age of seventy, there are also more of fifty, than of sixty, yet the latter age gives more than double the number of patients. By this it may be perceived, that the predisposition to apoplexy increases towards sixty, and diminishes towards seventy. That this disposition is but little, before thirty, and that the number is extremely small before twenty; and the influence of temperament, is very far from furnishing the same results; the sanguine, sanguino-bilious, and the sanguino-lymphatic, furnish nearly an equal number of cases of this disease."‡

789. Serres has declared that apoplexy may take place at any period of life; if this be so, dentition in children must be looked upon as a predisposing cause, with them. The sudden alterations in atmospheric temperature, as well as moisture, have ever

* Philadelphia Journal of the Medical and Physical Sciences, Vol. VIII. p. 294.

† Recherches sur Apoplexie, p. 212.

‡ Ib. p. 213.

been looked upon as predisponents. Large heads and short necks; and, agreeably to Ponsart,* a small head equally disposes to apoplexy. Obesity, gluttony, drunkenness, &c. Temperament, agreeably to Rochoux, seems to have no very marked influence.

Exciting Causes.

790. Among the exciting causes, an overcharged stomach, is considered by many as the most common; excessive venery, especially in aged people; passions and emotions of the mind; labour in females, especially with the first child; sudden application of cold, &c. The mode of action of these causes, is, by increasing the force and rapidity of the circulation, as well as an especial determination to the head; yet it is evident, that there must be causes which constantly produce these effects, even in a more violent degree, yet they do not produce apoplexy. Rochoux directs our attention to “tumblers and mountebanks, who stand long upon their heads; who will place an anvil upon their belly, which they allow to be forcibly struck with a hammer, &c. If then apoplexy have taken place from apparently slight causes, we must attribute it to some alteration in the vessels of the head; their having become too weak to prevent the escape of the blood with which they are filled. Of this it might be easy to convince ourselves, by taking at random, a twentieth part of the histories of apoplexy; the three-fourths of which would be found to have had a paroxysm, without being able to suspect the cause. And is it not probable, that the other fourth, may assign causes for this disease, which were altogether fortuitous, and have had but a trifling agency in the production of it?” p. 218. The too frequent and long-continued use of the warm bath. We once witnessed this affection in a young lady, after having her feet and legs placed in very warm water; she fell suddenly from her chair, with all the usual marks of apoplexy attending—she was largely bled; and other means were liberally employed, before she recovered—she suffered with head-ache many months after this attack.†

Pathology of Apoplexy.

791. “A man falls down with all the symptoms of apoplexy,

* *Traite de l'Apoplexie et de la Paralysie*, p. 14, as quoted by Rochoux.

† Fourcroy relates the case of a person, who immersed himself in a bath of 66° of Reaumer, equal to 180° of Fahrenheit, and who fell down an hour afterwards apoplectic. And Buchan gives an account of another who was seized with paralysis after having subjected himself to a very warm bath.

but by bleeding, purging, and other means, he perfectly recovers. Another dies under apparently similar circumstances and treatment, and, on dissection, extravasation of blood is found within the head. A third dies of apoplexy, and only serum is effused. A fourth presents after death only a turgescency of the vascular system of the brain; while a fifth, who dies with every symptom of perfect apoplexy, presents on dissection, no cognizable trace of lesion in the brain, or any other organ of the body. These various and contradictory appearances, post mortem, would seem to offer an insuperable objection to any fixed pathology of apoplexy; or at least, might apparently sanction a division of the disease into different species. Nevertheless, we will endeavour to maintain an identity of morbid state, or in other words, of pathology in apoplexy, whatever may be the appearances after death. We consider *pressure** on the cerebral mass, or its appendages, as the real *efficient* cause of the apoplectic phenomena in every case.”†

Proximate Cause.

792. This opinion of the proximate cause of apoplexy has been almost universally adopted within the last few years; and the result of very many post mortem examinations would seem to confirm it. Its truth has, however, been lately called in question by M. Serres. He endeavours to prove that pressure is not the cause of apoplexy, and commences by asking, “are effusions the cause or the effect of apoplexies?” He determines this question in the negative, from the result of the following experiments.‡ They are first conducted on animals, and secondly upon the human subject.

793. *Experiment I.*—An old dog was trepanned immediately over the superior longitudinal sinus—the sinus was opened by a bistoury its whole length, and the external wound was closed, that a sanguineous effusion might take place. In three hours its natural state was so little changed, it was doubted that effusion had taken place.

794. “On opening the cranium, we found a very considerable clot of blood between the lobes, and a second extended to the left hemisphere.”

795. This experiment was repeated upon a young dog, lest it

* We have taken for granted, that the word *pressure*, as employed in this quotation, referred to this mechanical act, from extravasations within the cranium—in this we may be wrong; and if so, we beg its author's pardon, for having mistaken his meaning.

† Medico-Chirurg. Review, p. 7. Vol. I. for 1820.

‡ We have even abridged the short histories of M. Serres' experiments, by only retaining such parts as bear upon the points at issue.

might be thought that in the old dog the sinking down of the brain might leave a void between it and the cranium. The result was the same. In neither instance was there the slightest appearance of apoplexy. Rabbits and birds were subjected to similar trials with like results—"no somnolency, none of the symptoms which accompany apoplexies."

796. "There was already strong presumption against the generally received opinion; for I could compare this effusion to those which occur in the course of apoplexies between the dura mater and the arachnoid coat, or between this and the pia mater—apoplexies in which the substance of the brain is not involved."

797. "*Artificial Effusions in the Ventricles.*"—To determine the effects of this, a number of experiments were ingeniously made, by penetrating them with a sharp instrument. The corpus callosum of a grown dog was pierced, and the point of the instrument made to enter the left ventricle. The instrument was withdrawn, and the wound closed.

798. "The animal had a vertigo of a minute's duration—it was uncomfortable the whole day—had a little agitation in the pulse, and violent thirst, but there was no somnolency; his sleep in the night was troubled. In the morning, he walked about the laboratory. In three hours the cranium was opened; the effused blood had filled the great fissure between the lobes, and penetrated the left ventricle, which contained an ounce and an half of it—a small cavity was found in the anterior part of the corpus callosum, (middle lobe.)" This experiment was repeated upon a rabbit with a similar result.

799. "*Artificial Excavations formed in the Cerebral Substance.*"—An old dog was chosen for the experiment. Two drachms of the left hemisphere of the brain was removed by a bistoury; no sleepiness or impeded respiration followed its removal. An excavation containing a coagulum of the size of a nut was situated in the middle of this lobe. On another animal, a cavity was made in each lobe of the brain with like result—no apoplectic symptoms. The same was performed on a pigeon—no somnolency.

800. *Experiment Sixth.*—"I made an artificial opening into the middle part of one of the hemispheres; I took away a certain quantity of the cerebral substance—I thrust a cork into the aperture in the manner of a plug, so as to augment the pressure. There was a complete hemiplegia, but no apoplexy, no somnolency." These experiments were repeated upon rabbits, birds, oxen, and horses, with like results. From these the following important deductions are made.

801. "Thus sanguineous effusions do not produce apoplexies, whether they be lodged between the cranium and the dura mater,

or between this membrane and the brain—whether they occupy the grand interlobular fissure, and in this manner rest upon the corpus callosum—whether we have formed a cavity in the hemispheres, before, behind, or in the middle, or pierced it from one side to the other—whether in fine, in traversing the corpus callosum, (middle lobe,) we had penetrated into the ventricles, and filled these cavities. The same result with rabbits, the same with birds, the same result upon dogs. The apoplexy of man, therefore, cannot be attributed to the presence of the effused blood, whatever place it may occupy; whether it be found out of the brain, or in the cavities of that organ, or lodged in its proper substance.”

802. “*Experiments relative to man.*”—“Do the facts of pathological anatomy relative to the brain of apoplectic persons contradict my experiments?” He refers for the answer to this question “to the annals of our science.” He cites a case from Vesalius, of a child of two years old, having nearly nine pounds of “serosity” in the circumvolutions, and ventricles of the brain, yet there was neither “somnolency, convulsions, or paralysis.” Another from Wepfer, of a man of seventy, who died of consumption, and who “had spoken to the moment of his death,” in whose “ventricles and between the meninges a great quantity of limpid serosity” was found. Another witnessed by himself, in which there was delirium to the moment of death; the brain was a little softened, and “an enormous quantity of serosity occupying its infractuositities, the four ventricles, and the canal of the spine.” In an old man of seventy, who died of dropsy, and who preserved his senses to the last moment, was found a sanguineous serosity in the left ventricle of the brain, and clotted blood in the right.

803. His seventh “observation,” relates to a person who had been three weeks recovered from an apoplexy, but who died of a pleurisy on the seventeenth day of his new disease. “On opening the cranium, a clot of blood of the size of a small egg, was found lodged in the cortical substance of the great left lobe.” The eighth, was a patient who sunk “into an adynamic state the eighth day after his entry into the hospital.” “The apoplectic attack which had produced hemiplegia, had taken place six weeks before his death: since that time no symptom of apoplexy. On opening the head, a sanguineous effusion was found in the middle of the great lobe.” The ninth, was a woman who died of puerperal fever. “A hard coagulum was lodged in the cortical substance of the right lobe—this woman had a “*coup de sang*,” two years before. His tenth, eleventh, and twelfth, are in the main of a similar character and go to prove the same posi-

tion, that extravasated fluids may remain harmlessly in the brain after the symptoms of apoplexy have been removed, and consequently, that "neither effusions into the ventricles, or on, or in the substance of the brain, nor excavations of its medulla, are the causes of apoplexy."

804. Mr. Serres informs us, that the above observations were selected from twenty-two analogous cases, which he had collected in the hospital of "La Pitié." From these facts he decidedly infers, "if compression by fluids be the cause of apoplexy, a direct consequence is, that—*no apoplexy can exist without effusion*. Now I am only embarrassed" he says, "in the choice of authorities and facts to prove the contrary." And eventually declares from these premises, that there are apoplexies without effusions; and effusions without apoplexies; and that he is "led to a belief that the effusions are the *effects*, and not the *cause* of apoplexies."

805. He next attempts to ascertain, whether apoplexies offer any appreciable differences during their development and continuance; and whether these have a constant relation to the seat of the disease, and whether this is supported by dissection; and lastly, whether the seat of apoplexies can be determined by the presence or absence of these certain symptoms, and thus establish a mode of treatment. During his endeavours to distinguish sanguineous, from serous apoplexies, he discovered, that this disease presented two different forms—one simple, and the other always complicated with paralysis.

806. He now asks, "was this remarkable circumstance the effect of accident, or did it depend upon discoverable causes?" The answer he says "was given to me by the histories of an hundred apoplexies."

807. "Of this number, twenty-one were simple; seventy-nine were complicated with paralysis. Of the first, dissection gave the following results—sixteen had collections of serum either in the ventricles and cerebral convolutions, or in the ventricles, or in the convolutions separately; one had a sero-sanguineous collection in the left ventricle; two had similar collections between the arachnoides and pia mater in both hemispheres; and two were without any collection." In all these cases the *brain* was sound; but the *membranes* were affected in various degrees; the vessels were injected, thickened, opaque, and sprinkled with miliary granulations.

808. From the constant correspondence between the alterations of the membranes, and the effusion, he was led to suppose there was some connexion between them; he was therefore led to the conclusion, that in the meningeal apoplexy, the *mem-*

branes are *primarily* and *principally* affected, and that the *various effusions* which are met with are nothing but the *effects* of these alterations.

809. Whereas, in apoplexies complicated with paralysis, there were no effusions, either serous or sanguineous in the natural cavities of the brain, nor in the space between duplicatures; no alteration in the texture of the membranes—but the *brain* was materially altered in structure—excavations were dug in its substance; the whole surrounding texture bore marks of irritation. The blood which was extravasated, was found to proceed from a rupture of a vessel, which was proved by filling the carotids with fine injection, and observing that it penetrated the cavities.

810. He now inquires why all the cerebral apoplexies, (that is, apoplexies attended by lesions of the brain,) should be accompanied by paralysis, while the meningeal, should not be attended by a loss of motion. He answers these questions by saying that apoplexies followed by paralysis, is the necessary effect of an organic alteration of the proper substance of the brain, while in meningeal, or simple apoplexies, the brain being sound the capacity for motion would remain unimpaired.

811. From these important, and interesting facts, he arrives at the following novel deductions:—1st. That, when apoplexy is not complicated by paralysis, the disease is seated in the membranes of the brain. 2d. That when attended by palsy, the brain is the seat of the irritation. 3d. That serous, or sero-sanguineous, bloody, or purulent collections, are effects of irritation of the membranes, or the brain, or of arterial, or venous rupture.

812. He thinks, from these considerations, apoplexies should be designated as follows:—1st. *Meningeal apoplexy*—is apoplexy without palsy. 2d. *Cerebral apoplexy*—apoplexy with palsy. Thus he thinks we are enabled to determine the nature of the disease we have to contend with during the life of the patient. If it be simple, the patient can move his limbs; the disease is then in the membranes. If he cannot move his limbs, and the mouth distorted, it is a cerebral apoplexy, that we have to encounter.

813. “The meningeal apoplexy principally attacks youths from the age of fifteen, and old men past sixty—it generally affects females before the last named period.” “Of forty meningeal apoplexies, there were thirty-two in females, and eight in males.

814. *Attack*.—“Physicians have differed greatly in the mode of attack in apoplexies. One party has said that they always come on suddenly—the other, that the attack is preceded by precursory symptoms, which manifest themselves many days previous.

Both sides have been right, and both in a certain degree wrong, as the cases may have been meningeal or cerebral."

815. The meningeal apoplexy is almost always slow; has precursory symptoms, as torpor; difficulty in exercising the mind, and its becoming easily fatigued; perception blunted; drowsiness; respiration slower than ordinary—tardy circulation; less warmth than usual; secretions diminished; impaired digestion, and sometimes vomiting.

816. Mr. Serres asks, "what distinguishes apoplexy from sleep?" He answers the question by the following important observations. "In sleep the respiration is slow, and the circulation is in a relative proportion—in apoplexy the natural relation is destroyed."

817. Whatever difference age and strength may make, in the number of pulses in a given time, the discordance between them and respiration never fails to show itself; and when this is at its maximum, the stupor is also. Thus Mr. S. relates a case in which the following extreme of disparity between the pulse and respiration existed—pulse, eighty-three strokes to eleven inspirations. And, that the abolition of the natural and mental functions, are in the precise ratio to the loss of the healthy proportions, between the motions of the heart, and the lungs; and that these functions are restored, exactly in the degree, that the pulse and the breathing, approach the natural standard.

818. He also states this curious, and to diagnosis, valuable fact; that in meningeal apoplexy, respiration is always equal on both sides; that is, the thorax is equally dilated on the right and left sides, which is not the case in cerebral apoplexies. The mouth is not distorted; the body lies in a straight line; and if the patient be not in a state of stupor, he will present both hands—if he be somnolent, irritating the limbs will produce the same motions. The nervous and muscular systems preserve their powers on both sides. Though meningeal apoplexies present important varieties in the fluids effused, Mr. S. acknowledges, he has never been able to indicate them individually from the accompanying symptoms.

819. The varieties of meningeal apoplexies, are deduced from the nature of the fluid effused; by the absence of effusion, and the rupture of arteries or veins in the brain. Hence, there is, 1st, *meningeal apoplexy* without effusion; 2d, with effusion of simple serosity; 3d, with sero-sanguineous effusion; 4th, with arterial rupture, or aneurismal dilatation; 5th, with venous rupture.

820. *Dissections.*—In meningeal apoplexy without effusion, the pia mater is thickened, dry, and the vessels slightly distended.

821. In var. 2d, the arteries and veins are distended, and all the pia mater is covered with a net-work of small vessels—the arachnoides opaque, thickened, and in places covered with a whitish exudation. The choroid plexus is generally injured; distended.

822. In var. 3d, the alteration very similar to those in var. 2d; but the arachnoides manifestly red and inflamed. It is principally in the lateral ventricles this irritation is observed.

823. In var. 4th, all the arteries are distended; a rupture is found either in one of the trunks, or one of the branches. A part of an artery may be aneurismal.

824. In var. 5th, the veins are more frequently ruptured.

825. Whenever coagulated blood is found between the membranes and the ventricles, and the cerebral substance sound, we may be certain that the hæmorrhage has been caused by the rupture of an artery, or a vein. Venous rupture frequently occurs in the choroid plexus. The meningeal apoplexy with serous effusion is the most frequent—they are as seven to two.*

826. *Cerebral apoplexies and their varieties.*—In describing these, Mr. S. proposes to solve the following question:—“an apoplexy being given, to determine its seat by its symptoms.”

827. *Attack.*—The attack is often instantaneous, especially in men of plethoric habits, short necks, corpulent, and addicted to wine and women. Some moments before the attack, the mind is more than usually active. Sometimes a numbness of one side, one side of the face, or a fixed pain in the head, precedes the attack; the tongue is sometimes embarrassed; a difficulty in pronouncing certain letters, or words—rarely stut-tering.

828. “But whether the fit has been preceded by these symptoms or not, at the moment of attack, the face is coloured in an

* Dr. Craigie, p. 210, differs a little from Serres in the appearances of the brain in apoplexy. He says, “in several of the cases in which blood is found in the ventricles of the brain, it cannot be traced to any other source save the exhalants of the choroid plexus; and blood may be shown to be effused occasionally from the outer division of the arachnoid membrane, and also from that which covers the spinal cord. In each of these cases, whether the fluid is merely sanguinolent, or is pure blood, it issues from the same vessels which, in the healthy state of the membrane, prepare its proper secretions. No rupture or breach can be recognised by the most accurate scrutiny.” Upon this subject however, we are disposed to look upon Serres as the better authority; especially, as Dr. Craigie’s account, cannot amount to more than what he has seen, which of course, is very limited, when compared with the observations of the French pathologists who have paid a direct attention to the subject; and who have had large hospitals for fields of observation. It is therefore probable, as Serres declares, that there may be apoplexies with and without rupture of vessels.

unusual manner; the cervical and facial veins swell; the tongue becomes embarrassed; the sight is imperfect; the hearing impaired; the sensibility and the faculties of the mind lost—and if the patient be erect, *he falls upon the side which afterwards will be struck with apoplexy*—this circumstance is of much importance to the physician when called to the patient.”

829. “Some hours after the attack, if the brain has not already been destroyed at some part of its surface, respiration becomes slower, the venous blood suffers a mechanical obstruction, and requires an appropriate reaction of the breast. The pulse is strong, hard, and frequent—the action of the heart increases in proportion to the difficulty of respiration. The force and hardness of the pulse continue until the moment a vessel gives way in the brain—it then becomes suddenly small, concentrated, and frequent.”

830. “Respiration is equal on both sides in the beginning of the attack, but the thorax and lungs are unequally dilated—one side of the chest becomes motionless, while the other seems to redouble its activity; on the side in which the action is diminished, the ribs are flattened, but on the opposite side they are elevated; the two sides thus offering a very obvious contrast. This happens previously to the occurrence of the hemiplegia; and it is important to attend to this symptom, as it points out the side that will be paralyzed.”

831. Coma and stupor extreme—sensibility diminished on both sides; sometimes remarkably so on the side about to be injured—at other times, sensibility remains, though paralysis is about to take place. The paralyzed member sometimes preserves its sensibility; but when it loses it, it is before the loss of the power of motion.

832. *Varieties of Cerebral Apoplexy.*—Observation has not furnished us in cerebral apoplexy with any decided marks or symptoms of each variety, any more than in the meningeal. Dissections have revealed the following forms of cerebral apoplexies: 1st, *cerebral apoplexy* with hemiplegia; 2d, with paralysis of one arm; 3d, with paralysis of one leg; 4th, with double hemiplegia; 5th, with complete paralysis from a single attack.

833. “These apoplexies have distinct and different seats in the brain, as will be seen by the following analysis of my dissections.” Mr. S. then says,

834. “I have openly and attentively dissected one hundred and seventy-one subjects, dead of *cerebral apoplexy*, with hemiplegia of the arm and leg at the same time; and I have found, in one hundred and seventy-one, the hemisphere of the brain on the opposite side materially affected in its structure. I have dissected the brains of forty-seven hemiplegics dead at the Hospital

of Pity, and forty-seven times I found disorganization opposite to the palsied side. I have received, from the hospitals of the Bicêtre and Salpêtrière and the Hôtel Dieu, about one hundred and fifty brains of hemiplegic patients, and always without exception, the alteration of the brain was in the opposite lobe to the paralyzed side. May we not, after these facts, and by the aid of two or three thousand cases contained in the annals of science, establish it as a principle, that the cerebral disorganization constantly occupies the lobe opposite to the palsied side, or the side that has remained hemiplegic, during the cerebral apoplexy."

835. Double hemiplegies may come on suddenly, or by two distinct attacks. In this species, the mouth is not paralyzed, as is the case of single hemiplegia. In both, the seat is the same as in single apoplexy, with paralysis on one side; the two sides are successively affected. A single stroke may paralyze the whole body; neither of the limbs can be excited to motion by any stimulation. In this case the extravasation will be in the pons varolii or tuber annulare. Death always follows with frightful quickness. The patient dies of asphyxia, or like animals which have had both pneumogastric nerves cut. Such are the principal varieties of cerebral apoplexies, and if "I mistake not, we may prognosticate the seat of the disease from the symptoms."

836. In all instances of apoplexy without paralysis, the brain itself is uninjured—but in these cases, the membranes are altered in different degrees; but that each of these degrees has its peculiar character of effusion. Had the irritation been intense, sudden, and of short duration; were the membranes inflamed partially or universally, the fluid effused within the ventricles, between the convolutions, or in the commencement of the spinal canal, was always found to be either sanguineous or sero-sanguineous. This effect was so uniform, that the effusion was only found where the irritation had existed previously—if this irritation happened to the ventricles alone, the effusion was limited to them; if upon the exterior of the encephalon, the sanguineous fluid was only found there, for the ventricles in such a case would be found either empty, or contain nothing but simple serosity.

837. In apoplexies with paralysis, the disorganization of the encephalon was constant, as has been observed before. If there was nothing fortuitous in these coincidences, Mr. S. says it is easy "to assign to apoplexies their characters, place, and name." The apoplexies without palsy having their seat in the membranes, he thinks are properly designated by the term *meningeal apoplexies*; while those complicated with paralysis, are called *cerebral apoplexies*.

838. Our author denies the existence of serous and sanguineous as separate species; and insists that all apoplexies are seated in the brain and its appendages. And those recorded, purporting to be apoplexy of the stomach or intestinal canal in apoplectic subjects were accidental, and derived their supposed existence from the irritation or inflammation excited by the emetics and cathartics administered for their relief.

Of the Treatment of Apoplexy.

839. The treatment of apoplexy, will very properly divide itself into that which is prophylactic; and into that, which is necessary during the paroxysm.

1. Of the Prophylactic Treatment.

840. By glancing our eye upon the predisposing causes of this disease, it will be perceived, that bodily conformation, habits, period of life, and temperament, may one or all contribute to the production of apoplexy. Each of these conditions has some modifying influence either upon the formation or distribution of the blood, so as to determine it in an unequal, or in undue manner, to the brain; consequently, to be useful to a constitution, prone from either, or all of these causes to apoplexy, their agency must be counteracted in the best manner in our power. We have full belief in the existence of an *apoplectic constitution*; and of course, an entire conviction of the tendency, of certain causes to effect the transportation of an undue quantity of blood to the vessels of the brain, and thus indirectly produce the disease in question.

841. If this be true, it will follow, that all our means must be directed to the prevention of the too great formation of blood, or divesting it from an unequal distribution. These means will necessarily consist in a proper observance of diet, in the judicious employment of exercise, and the proper administration of remedies.

842. The first plan must be carried into execution, by recommending a diminished quantity of, or an entire abstinence from, animal food, at least so far as will be compatible with the safety of the stomach, and the general strength of the body. A diet consisting chiefly, if not altogether, of vegetables, should be rigorously adopted. Nothing but plain water should be used for drink—all distilled or fermented liquors being absolutely and directly injurious. But care should be taken, in the selection of

the quality, as well as caution exercised, in the use of the quantity—for error may be committed in either.*

843. The quality should be that of easy digestion; or of such substances as experience had proved to be acceptable to the stomach; for in this particular individual differences will constantly present themselves. Rice, sago, arrow-root, tapioca, barley, oatmeal, potatoes, turnips, tomatoes, salsafee, parsnips, beets, ochres, and spinage, may be looked upon as the most digestible; the ripe fruits of the season may also be indulged in. Cabbage, beans, sallads, raddishes, onions, and cucumbers, are decidedly improper, from the difficulty almost constantly found, in their assimilation. If animal food in any quantity be indulged in, it should be of the most digestible kind; or such as has been found by experiment to be speedily and easily digested. Suppers of every kind should be avoided. The quantity should be no more than the stomach can with facility and certainty digest.

844. Exercise should be regularly and steadily pursued; but it should never consist of such exertions as have a tendency to force the blood into the head; such as are proscribed will easily present themselves to the mind, and should be carefully avoided. Exercise must never be performed in a hot or even a warm sun; nor should it be indulged in extremely cold weather or in damp places. Serres recommends exercise, even to fatigue, for those disposed to apoplexy.

845. As it is every way desirable, that the circulation should not be hurried while the body is passive, the subject should shun all crowded places, heated air, and too much warmth at night from sleeping upon a feather bed, or indulging in too much bed-covering. He should sleep in a well-ventilated room; should wear nothing tight round his neck, or waist. Dr. Donald Monro says he has known soldiers carried off by apoplexy, in consequence of the stricture of the veins of the neck, from being

* In certain habits disposed to apoplexy, there appears to exist an anormal sanguification—this is so strongly marked in some cases, as to bid defiance to abstinence to counteract. We have seen two or three instances, in which the most rigid abstemiousness was observed, yet sanguification went on with such certainty and excess as to require the occasional abstraction of blood to prevent the disastrous effects of repletion. But one of the most remarkable cases of this kind is given by Dr. Rees, (on Costiveness, p. 162.) He says that “a gentleman strongly disposed to apoplexy, though he avoided animal food and stimulants, and selected from the vegetable kingdom the articles which afforded the least nutriment, was under the necessity of losing twelve ounces of blood every fortnight for many months, to keep off a fit of apoplexy, and within the last six months of his life he found it necessary to lose the same quantity of blood weekly; and notwithstanding active preventive means were adopted on the occurrence of a symptom of approaching apoplexy, he fell a sacrifice to the disease. The sanguiferous system became overloaded, a vessel of the brain gave way, and the effusion of blood produced fatal apoplexy.”

obliged to wear their cravats too tight. Winslow has also mentioned the same thing.* Dr. Fothergill mentions the case of a gentleman who was predisposed to apoplexy being seized with a fit, by turning his head too far round to look at an object rather behind him.† Now this position of the head could only have been mischievous by interrupting the descent of the blood from the head; acting as a partial ligature.

846. The utmost care should be taken against the suppression of any habitual evacuation; and if it happen, we should attempt its restoration as quickly as possible, and by the best means in our power. The menstrual evacuation, if arrested, should be recalled by the appropriate remedies; the hæmorrhoidal flux, if interrupted, should be compensated for by the application of leeches to the anus; issues, or setons if they dry up, should be renewed, &c.

847. Bathing the head with cold water daily, would be a very good practice with persons of apoplectic tendencies—the hair should be kept cut short; the direct rays of the sun should be reflected by a white hat; and the feet kept warm constantly. If the feet be habitually cold, the partial warm bath with the flour of mustard in it, should be used, whenever they feel uncomfortably cold, on going to bed.

848. It may, in addition to the means just suggested, be important to employ remedies, for the immediate diminution of blood, and for the proper regulation of the bowels. For the first, the occasional loss of a few ounces of blood will be highly serviceable—this may be done by bleeding from the arm, or by abstracting blood from the head by cups or leeches; or according to Serres, from the anus, by the latter means.

849. Costiveness should be very carefully guarded against, either by diet, or medicine; or if necessary by both. For the first means, the bran bread should be used freely instead of other bread; ripe fruits, prunes, figs, &c. For the second, the aloetic and rhubarb pill will answer admirably, (see p. 93.) It may be proper also to purge occasionally, especially if there be slight head-ache, unquiet nights, and confined bowels. The patient when in bed, should not fail to sleep with his head high, and uncovered by night-cap or handkerchief.

2. *Treatment during the Paroxysm.*

850. As it is agreed on all hands, that in apoplexy, there is an excess of blood occupying the vessels of the brain, or a quan-

* Cooke on Nervous Disorders, Vol. I. p. 227.

† Works, p. 214. Vol. III.

tity extravasated in either its cavities or substance, it would seem to follow as a necessary consequence, that nothing can take off the pressure caused by the distended vessels, or remove the distention from them, but a reduction of the quantity of this fluid; and consequently, that our main dependence for this effect, must be by blood-letting. By this it will be perceived, that we renounce the distinction made by systematic writers, of "sanguineous" and "serous apoplexy," though "educated" in its belief. We think indeed that no one will retain the distinction after a careful and dispassionate perusal of Serres's memoir upon this subject. Indeed the learned editor of the *Medico-Chirurgical Review*, calls it an ignis fatuus, though he does not feel himself authorized "to treat all cases of apoplexy in the same manner."

851. Notwithstanding our conviction of the absolute necessity of blood-letting in this disease, we are convinced, that both *time* and *quantity* must be regarded. *With regard to time.* It sometimes happens immediately after the apoplectic stroke, that the powers of the system are very much prostrated, from the sudden violence committed on the nervous system; the face is pale; the skin and extremities cold; the respiration slow and difficult; the pulse feeble and frequent, while both fæces and urine may be discharged involuntarily. Now, it must be evident, that if we prescribe for the *name of the disease*, to the total disregard of the state of the circulatory system, we should do much mischief, by the abstraction of blood.

852. It may be said, that this appearance is fallacious; and that the system is merely depressed, (see note to par. 352,) and that it will rise, if we take blood from it—this may be the case sometimes for aught we know; but we have never seen a case attended by the symptoms above detailed, especially in subjects advanced in life, in which the pulse was in a state of *depression* agreeably to the notions we have of that state of the arterial system. In cases of the kind under consideration, we have never ventured to abstract blood until we have enabled the system to react, by the use of external stimuli. We therefore direct the legs and feet to be placed if possible in warm water, in which there is a considerable quantity of the flour of mustard mingled. These parts are to be well rubbed with the hand while in the water for ten or fifteen minutes; they are then to be dried and wrapped in a warm blanket. Dr. Abercrombie speaks highly of strong frictions applied to the body.

853. Should it not be practicable to place the feet and legs in water as directed, these parts should be bathed with brandy and mustard or Cayenne pepper, until a rubefacient effect is produced. At the same time mustard and vinegar or brandy, should be applied warm, to each forearm until they redden the skin; and the

whole body should be warmed by heated blankets, bricks, or jugs of water. And if by these means reaction is established, then, and not until then, should we open a vein. But as soon as this has taken place, blood should be abstracted, with a freedom and to an extent commensurate with the powers of the system and the urgency of the paroxysm. It is impossible to give a definite direction as regards the quantity of blood that should be drawn at any one time, or during the course of the disease,* as this must depend upon the effects of that which is abstracting, or has been abstracted, upon the force of the symptoms, and the power of the pulse; remembering always, that bleeding is performed to no valuable purpose, if it be not carried to an extent that will diminish the vigour of the arterial system.

854. In order however to ensure this desirable end, at the least possible expenditure of blood, it should be abstracted from a large vessel, and from a large orifice, and in as short a time as may be practicable. For this purpose the jugular vein or veins are opened, sometimes, with great advantage—we say, sometimes; because this cannot always be done. If this vein be selected, it must be opened without the use of a ligature; as this would be mischievous, by retarding the departure of blood from the head. We have never found it necessary to do more, than to compress the vein, by the extremity of a finger.

855. If the jugular cannot be commanded, we should bleed from the arm or arms, making large orifices, as just recommended. To aid the bleeding, we should have the bowels opened as speedily, and as copiously, as possible; this should be attempted by an injection made of two ounces of senna and a pint of boiling water; and dissolving in it, after straining it, a table-spoonful of common salt. This must be repeated, from time to time, until the bowels are freely purged. If the patient be capable of swallowing, which is often the case, an infusion of senna of the strength just recommended for the injection, should be given him frequently by spoonfuls until the object for which it is given is accomplished. We prefer the senna to any other of the cathartic remedies; as it is always certain and prompt, if the sensibility of the alimentary canal be not too much diminished, as is the case, sometimes. Indeed the griping effect of the senna appears to be useful in all the affections of the brain, that depend upon its repletion.

856. Cold applications should be made from time to time, under the precautions suggested, (par. 533,) for their employ-

* Dr. Cheyne says, "it ought to be known that from six to eight pounds of blood have been taken from a person by no means robust, before the disease, which ended favourably, began to yield."

ment in fever.* The feet and legs should never be permitted to remain cold an instant, provided they can be made warm by artificial means. The patient should be placed in as an erect a position as possible, as every advantage should be taken of the benefit gravitation affords us.

857. As respects the propriety of repeating the bleeding, much must be left to the discretion of the medical attendant—for he must determine whether the state of the pulse and other symptoms will justify the further abstraction of blood. Should it not be thought justifiable to bleed from the arm, yet the symptoms persist, much advantage may be derived from local depletion; especially by cups—six, eight, or ten ounces may be readily abstracted by these means from the temples, forehead, or behind the ears and neck. Cupping is preferable to leeches, though we could abstract an equal quantity of blood by their application. Why this is so, is perhaps difficult to explain—but all experience seems to confirm it as a truth. Dr. Abercrombie seems to attach but little importance to local bleeding; at this we are not a little surprised; while Dr. Gregory, we are informed by Dr. Johnstone, used to declare in his lectures, he had seen the cupping-glasses rouse the patient, *when general bleeding had produced no effect.*

858. Of this fact we do not entertain a doubt; yet if it be received as it stands, as a practical lesson, it might grossly mislead the inexperienced practitioner; for it appears to imply, what we presume Dr. Gregory did not mean should be understood by the observation,—namely, that cupping was preferable in apoplexy to general bleeding; and that it would succeed, where this had failed. The fact therefore should only be thus interpreted, that by the general bleeding, a sufficient quantity to relieve the patient had not been drawn; but the additional abstraction of a few ounces by cupping, effected, just what was left undone, by the previous bleedings. For we will persist in the belief, that had not just so much blood been drawn by the general bleeding, that the local bleeding would not have been of the slightest avail. Indeed, topical bleeding should never be had recourse to, but after it was no longer proper to bleed, generally.

859. Of emetics in apoplexy, we can say nothing from our own experience, never having had courage, (from a preconceived notion we grant,) to employ them. Nor have we been seduced by all that has been said in their favour, by an inge-

* Cold water in a full stream upon the crown of the head, and received in a basin held under the chin, is recommended by Dr. Abercrombie in apoplexy. He gives an instance of a girl, who was quickly restored by this means, from a state, he believed to be, perfect apoplexy.

nious writer in the 6th and 7th vols. of the Medical and Physical Journal. To us there appears to be but one possible case in which they can be employed with the *probability* of advantage, and that is in crapulous apoplexy; and even here, we would not venture upon giving them, but after pretty ample depletion.

860. Every thing that can act round the neck like a ligature, should be instantly removed; nor should they be suffered to be reapplied while the disease continues. The patient should be placed in as airy a situation as circumstances will permit; and constantly kept in as moderate a temperature of atmosphere as can be commanded.

SECT. III.—PARALYSIS OR PALSY.

861. The disease under consideration, with several others, seem to prove, that every sublunary good is attended by a corresponding evil. The high order of mind granted to man, subjects him to evils, to which the humble and subordinate brute is exempt. The display of his intellectual faculties, or the exercise of his social virtues, subject the organ from which these benefits arise, to a variety of diseases. Among the most serious of these, are mental alienation, apoplexy, epilepsy, and palsy. The brain, though transcendent in power, is nevertheless most delicate and frail in structure; and though destined to endure much, it is nevertheless most vulnerable; and when it suffers lesions, the penalties are in proportion to the high destinies this organ has to fulfil.

862. The disease now to be described, is not one of the least of the evils to which the brain and nervous system are liable—though less dangerous than apoplexy, it is infinitely more permanent, and thus perhaps becomes the greater evil; for it is not only followed by physical inability, but by serious moral evils and disqualifications.

863. The male is more liable to this disease than the female; is this owing to less predisposition in the female, or to the greater exposure of the male to its causes? The latter is the more probable, as the male, from his peculiar and unalienable habits, must necessarily incur a greater share of risk; and we may safely add, his artificial, or voluntary habits, also subject him to the same liabilities; thus his high and luxurious living causes plethora, and plethora causes apoplexy, and consequently palsy.

864. We say consequently palsy; for when idiopathic, it is only a “minor apoplexy.” Dr. Gregory however asserts, that “it will be found in practice, that palsy is much more com-

monly the precursor, than the consequence of apoplexy.”* To this we cannot assent, and for this, to us, sufficient reason, that we have never observed the order spoken of by Dr. Gregory; for every distinctly recollected instance of idiopathic palsy, had been preceded by apoplexy, or some lighter cerebral affection; but we cannot name a single instance of the converse of this position, though we are far from denying that it has occurred. We have seen an entire restoration of the mental powers, after apoplexy, though it was followed by hemiplegia; and one of these instances, a few days since, proved fatal in about forty-eight hours, by an effusion of water in the chest; the patient was sensible, to within five minutes or less, of his decease. We shall therefore refer the reader to what we have said on the causes and pathology of apoplexy, (p. 242, et seq.) as they will strictly explain, what relates to the production and consequences of idiopathic palsy; for the latter is only the sequence of the former.

865. Yet there are circumstances connected with the phenomena of palsy that are both curious and important in pathological and therapeutical points of view—namely, and especially, the loss of power in, or the controul over, the voluntary muscles of the part affected, yet leaving their sensibility unimpaired; while on the other hand, there may be a total loss of sensibility, with an entire command of the muscles of the part affected.

866. “This curious fact,” says Dr. Gregory, “has perplexed physiologists in all ages; and various theories have been offered in explanation of it. In the present state of our knowledge, however, regarding the functions of the brain and nerves, they must be considered as altogether hypothetical.”

867. Why *all* that has hitherto been said with a view to elucidate this seemingly inexplicable phenomenon, should be looked upon as hypothetical, in the opinion of Dr. Gregory, we are at a loss to determine; since Mr. Charles Bell has clearly shown that for the purposes of *muscular motion*, and of *sensation*, there are separate and distinct nerves; and from what he has

* Dr. Potter, one of the editors of Dr. Gregory's work in this country, makes the following correct observations; “we may imagine this position will be reversed, when we shall have made ourselves acquainted with the pathology of apoplexy. Hemiplegia can only be the effect of the want of that sensorial power, which is distributed to the nerves from the brain in health; and although all the more prominent symptoms of apoplexy may not be present, the paralysis clearly demonstrates, that there must have been some injury done to the nerves at their origin, which disabled them in the performance of their ordinary functions. If we do not adopt this theory, we are not able to account for the state of the nerves in which palsy consists. We observe many instances of palsy preceded by slight affections of the brain; but in all such cases, if we had examined the state of the circulation, we should have discovered a tense pulse, a furred tongue, and a great molestation of the sensorium.”—*Gregory's Practice of Physic, Vol. II. p. 45.*

very clearly demonstrated upon this subject, there can be no mystery in the insulated sufferings of nerves; for though tied up together in the same fasciculus, they act as independently of each other, as though they were widely separated. As Mr. Bell's views of the independent functions of nerves are highly interesting, and may be altogether new to many, we will give his account of them in his own words.

868. "In the view which I have taken of the nerves of the human body, there are besides the nerves of vision, smell, and hearing, four systems combined into a whole. Nerves entirely different in function extend through the frame; those of *sensation*; those of *voluntary motion*; those of respiratory motion; and lastly, nerves which from their being different in the qualities that distinguish the three others, seem to unite the body into a whole, in the performance of the functions of nutrition, growth, and decay, and whatever is directly necessary to animal existence."

869. "These nerves are sometimes separate, sometimes bound together; *but they do not in any case interfere with or partake of each other's influence.*"

870. From these statements, no difficulty seems to arise in the explanation of the phenomena presented in hemiplegia, or other palsies; for, as above hinted, that portion of the medulla oblongata or other portions of the brain, or nervous system, may suffer a lesion, that shall implicate the nerves of motion, or of sensation, or of both. Generally speaking however, it is the nerves of motion that are principally affected; while the integrity of those of sensation may remain perfect, or even a little exalted, as is proved by formication, the action of blisters, &c.

871. The loss of sensation is much more rare; but we are not without some remarkable instances of this kind, one of which is recorded in the *Mémoires de l'Académie des Sciences*, for 1743. A soldier, after having lost accidentally all sensibility in the left arm, continued to exercise with the same freedom as ever; so that he was enabled to continue the manœuvres with his gun.

872. The loss of sensibility, or of the power of voluntary motion, are almost the only phenomena presented by a paralyzed limb; though occasionally we see a swelling or œdema, in both the hand, arm, foot, and leg of the affected side. The pulse is said to be weaker in the paralytic side, than in the well side—this might be taken for granted at first sight by some; yet it must not be too hastily admitted, for there is much difficulty in making the comparison; for as happens with almost every body, the artery is strongest in the right arm of a right-handed person, and the reverse; therefore there is much doubt on this subject, nor can it be established with any certainty either one way or

the other, nor is it of any consequence, except as a physiological fact.

873. Another remarkable circumstance arises with respect to palsy, which is, that the lesion in the brain is always found on the opposite side to the paralysis. This also appears to admit of explanation, from the late discoveries in the anatomy and physiology of the brain and nervous system; though it has puzzled physiologists from the time of Hippocrates, almost to the present moment. For what was conjectured with regard to the decussation of nervous fibres, by Aretæus, (Gregory,) has been confirmed by late and accurate observation.

874. Dr. Gregory says, "the principle of *decussation* seems to be generally admitted; but the difficulty consists in determining its seat; some placing it in the corpus callosum, others in the tuberculum annulare, the medulla oblongata, or the medulla spinalis." If this be offered as an objection to the doctrine of *decussation*, it is but a feeble one; since if either of these parts be the seat, it is every way sufficient to account for the phenomenon of the lesion in the brain being on the opposite side to the paralysis; and if it be essential to point out one of these parts, we would name the medulla oblongata, in which it has been traced beyond objection, (Horner.)

875. Indeed it would seem from the researches of Bouillaud, that injury happening to different portions of the brain will give rise to different phenomena, and especially to the different partial palsies. Thus he says, 1st. When palsy happens to the organs of speech, it is the anterior lobules of the brain that is injured. 2d. When the palsy happens to the inferior extremities, the middle lobules, or the corpora striata is concerned. This opinion he says is nearly the same as that entertained by Saucerotte and of MM. Foville, Pinel, Grandchamps, and Serres. 3d. When this disease is seated in the upper extremities, the optic thalami, or the posterior lobules, is in fault," &c. *Traite Chirurgie et Physiologique de l'Encephalite*, &c. pp. 276-8.

876. This author appears to have ascertained pretty satisfactorily the connexions just stated, and especially the first, as he has given a number of facts in support of them. It however yet remains perhaps an uncertainty, how far these observations tend to enlighten us in the treatment of palsy—the most important object, of our studies and researches; but, because we cannot at the present moment turn them to advantage, we are not to lose sight of them, as they may by and by be of the greatest practical value.

877. The temperature of the paralytic limb, is not so uniform as in health, as might be reasonably supposed, when we consider the probable agency of the nervous system in the production of

animal heat. And it might offer some novel views of this process, could it be determined by well-directed experiments, in which state of the limb, animal heat is most extensively evolved; whether when it is deprived of its sensation, or of its locomotive powers; or whether this process is affected equally in either of these situations.

878. Mr. Earle* is of opinion, that there is a considerable decrease of heat in a paralytic limb, as they appear to be disqualified from preserving a fixed or uniform temperature; that they are much disposed to acquire the heat of communication, and that they are injured by a degree of it, that would not be hurtful to a sound limb.

879. The natural and vital functions are for the most part but little injured in hemiplegia, if we except perhaps a little tardiness of the bowels—but this is not by any means constant. We have at this time, an aged hemiplegic patient, whose bowels are most perfectly regular, though not able to take the least exercise. This case was preceded by an apoplexy of moderate force, and short continuance. Some of the features are wont to suffer in this species of palsy, especially the mouth, and occasionally the eyes. In the case just alluded to, the mouth was much drawn aside at first, the eye was swelled, and in a strong light there was slight strabismus. The mouth, in the course of a few months, was restored nearly to its natural condition, but the affection of the eye continues. In consequence of the affection of the mouth, most paralytics slaver or drivel very much from the injured side; and the same want of power to retain the saliva, disqualifies them from swallowing liquids. The speech becomes indistinct almost always, to a certain extent; and almost all paralytics find some words of more difficult utterance than others. The tongue, when thrust forward, becomes curved or inclined to one side, in consequence of the unequal powers of its muscles.

880. It is rare for the patient to retain his mental faculties in their full vigour; they gradually fail, even to extinction sometimes—but to this there are exceptions; for in the instance already noticed, we have never been able to observe the slightest change; the same powers of reasoning, the same happy choice of words, the same precision in the order of his business; and the same amenity and gentleness of manners, as has ever characterized his best health.

Prognostic.

881. Unpromising as appearances almost always are in hemiplegia, instances now and then occur of entire recovery. I. M.

* Medico-Chirurgical Transactions, Vol. VII. p. 179.

aged sixty years, had hemiplegia to follow a slight apoplectic attack—his left eye, the side of his mouth, and tongue were apparently more affected than the side; that is, he could not speak to be understood; the eye was nearly closed; the eyelids considerably swelled; the tongue protruded a little beyond the lips; and the saliva flowed incontinently from the mouth. All muscular power was not destroyed, as he could move both the leg and the arm a little, by a very strong exertion of the will. He remained for a few weeks without much alteration; he now however began to show signs of amendment; by the œdema leaving the eyelids, and the eye itself resuming its natural appearance; his mouth becoming straighter, and retaining the saliva better; the tongue began to perform its offices with more success, for he could now articulate; and the arm and leg obeyed the will to a certain extent, though very imperfectly. After this, his improvement was no less rapid than secure; for there was no threatening of relapse, and at the end of a year, he was perfectly relieved, and remains so to this time. His recovery is so perfect, that no one unacquainted with his former situation, would for a moment discover that he had ever been paralytic. He is now nearly seventy years of age, and is obliged, from the nature of his avocation, to walk several miles daily.

882. This, however, it must be confessed, is a rare case—as for the most part, the “stroke,” as it is called, is more commonly repeated, than recovery to ensue; for against a repetition, there seems to be no absolute security; for this may take place as suddenly as unexpectedly, and prove fatal in the instant. At other times, the improvement is extremely slow; and seems to arrive to a certain point, from which it never stirs; in this case, the patient may drag on for many years, a miserable existence; and is at last perhaps carried off by apoplexy.

Paraplegia.

883. By this term we understand the entire loss of power of the lower half of the body. This species of palsy is less frequent, though more disastrous than hemiplegia; the urine flows involuntarily; the sphincter ani cannot retain the fæces when they are urged into the rectum, and consequently both are discharged without the power to prevent them, or perhaps the consciousness that it has taken place.

884. This species, like the one just considered, Dr. Baillie has shown, may depend upon some pathological change in the brain, like that causing hemiplegia. This complaint is usually slower in its march than hemiplegia; a numbness or stiffness in the lower limbs are first felt; but by and by the patient is unable

to walk, or to support himself, soon after which, the distressing symptoms above mentioned, are found to follow; and after, (sometimes,) a long period of suffering, the patient dies; but this is more frequently from exhaustion, than from a renewal of the "stroke."

885. We are told, that dissections have proved, that cerebral lesions have been found in this disease, as well as in hemiplegia. And Dr. Baillie says, he has known it to be preceded by head-ache, drowsiness, impaired vision, loss of memory, dropping of the eyelids, and eventually a loss of power in the lower extremities. Few recover from paraplegia.

886. There are a number of local or mechanical causes enumerated by authors as having produced paraplegia; as a diseased spine produced by a mechanical cause; incurvations from scrofula or rickets; inflammation of the covering or the substance of the nerve; irritation of the bowels, &c.

Partial Palsies.

887. Notwithstanding the progress that pathology has made, and is now daily making, there are many things connected with the affections of the brain and nervous system, that are extremely difficult, if susceptible of explanation in our present state of knowledge. Hence many instances of partial paralysis do not appear capable of an explanation, by referring their causes to lesions of either the brain or spinal marrow, or to local causes, as far as can be detected by any anatomical change of structure. We are therefore obliged to admit that the cause of palsy is sometimes inscrutable.

888. Palsy of a partial kind has followed falls, blows, or solution of continuity; it has been produced by pressure upon an individual nerve, as by a ligature, tumours, fractures, luxations, by serous, sanguine, or purulent effusions. Plethora alone has been said to give rise to palsy; the suppression of accustomed evacuations of any kind; excessive purging; intemperate use of spirituous liquors; narcotic, acrid, corrosive substances taken into the stomach; emanations from lead, mercury, and arsenic; enervating pleasures; fits of passion; grief; disappointment; frights; or other severe exercises of the mind, &c. &c.

889. Now it is not difficult to perceive or understand how some of these causes may induce partial palsy; but others are beyond explanation in the present state of our knowledge. The action of any of the mechanical agents just enumerated, can be readily understood, when they are brought to act in a particular manner upon a nerve; but when causes act upon the brain generally, and palsy follow, we are obliged to assume the fact,

and give up the attempt at explanation; thus the action of moral causes is altogether beyond our comprehension. Considerations like these, has led Dr. Powell* to the opinion, "that paralytic affections, both partial and general, often originate in a peculiar condition of the *nerves alone*; that they are independent of any morbid affection of the blood-vessels of the head; and that they are produced in many instances by cold, and in some by sympathy with particular states of the stomach, or other distinct local irritations." Of the latter kind, Dr. Physick and myself attended a lady who had a palsy of the arm to follow not a very severe indigestion, and of which she entirely recovered, by remedies altogether addressed to the stomach.

890. But the most common cause of partial palsy is unquestionably from lead. This is frequently met with among painters, plumbers, workers of mines, manufacturers of white lead, and all such as are obliged to work in this metal or its preparations. Local applications of this substance has produced partial palsy; we knew the eyelid paralyzed, by having it painted with white lead and lake, to hide its blackness, from a blow. Dr. Cooket gives the following account of the symptoms of palsy from lead, as taken from Dr. Clutterbuck's works upon this subject.

891. "A weakness of the hands is the first thing perceived; the patient is unable to grasp any thing with firmness. This weakness seldom extends itself above the wrists, but he is tormented with pains in the shoulders and upper-arms, resembling chronic rheumatism. The weakness soon increases, so that he loses altogether the use of his hands; he is unable to support the hand in a line with the forearm, and he can with difficulty lift it to his head. The fingers are incurvated, and he is unable to extend them voluntarily; not that they are rigidly contracted, for they can be easily straightened by any extraneous force; they remain bent, because the tonic powers of the flexors, exceed somewhat that of the extensor muscles. No diminution of the sensibility of the skin is perceived to accompany this paralytic state of the arm, the affection seems confined to the muscles alone; the legs are seldom affected in the same manner as the arms are found to be."

Treatment.

892. Though no plan of treatment, however well devised, will be always certain to relieve palsy, nevertheless, an ill-di-

* Gregory's Practice, Vol. II. p. 51.

† Gregory's Practice, Vol. II. p. 52, note by Dr. Colhoun. Dr. C. has not designated which of Dr. Cooke's works he has taken his quotation from; it is not at p. 110 of his "Nervous Diseases."

rected one is sure to increase its evils. There is no disease more empirically treated than palsy; the vulgar, and but too many of the *initiated*, seem to have but one principle to govern their therapeutical views, namely, to restore power, by stimulants applied to the part affected, or internally, with the same intention. It is therefore not to surprise us, that so few recover from this distressing disease. We may safely say, that few diseases require a more strict attention to the state of the circulation, or a more cautious and judicious application of remedies, than the disease in question.

893. If we advert to the causes of palsy, or trace its intimate relation to apoplexy, we shall in an instant perceive the impropriety of stimulants, and be convinced of the necessity of depletion, either general or local or both, as the exigencies of the circulation may require. We are aware that much prejudice is entertained against "weakening remedies" in palsy; and that it would be much easier to gain the consent of the patient or his friends, to administer the most violent stimulants, from which death might quickly follow, than to draw a few ounces of blood, that might probably save his life.

894. Notwithstanding the decided necessity of depletion in many instances of palsy, it is not always so obviously indicated as to leave no doubt upon the mind of its propriety. It therefore requires sometimes much discrimination to detect the necessity of depletion; and no inconsiderable judgment to apportion its quantity; we may however often in these dubious cases, derive advantage from observing the effects of even moderate stimuli upon the nervous and sanguiferous systems. For should any substance have been carelessly or injudiciously exhibited, under an impression, or otherwise, of its necessity, if its qualities be wrong, that is, over-stimulating for the state of the system, though feeble in the rank of this class of medicines, it will often betray its incompatibility, by flushing of the face, general uneasiness, increase of heat and thirst; and thus discover a marked phlogistic state of the system.

895. The pulse will however generally conduct us safely in such cases, if it be properly consulted, together with the other phenomena, that the system presents at the moment. If the pulse be full and slow, or unusually quick or frequent; if there be heat, or a pricking sensation in the skin, head-ache, or drowsiness, flushed cheeks, high-coloured and scanty urine, and white tongue, the loss of a few ounces of blood is distinctly indicated, either by the use of the lancet, or cups or leeches—if the pulse be quick or frequent, by the lancet; if sluggish, by cups or leeches to the back of the neck and temples.

896. Purging is next in importance; it should be pretty con-

stantly maintained, especially in recent cases, to break in upon, and to prevent the habit of determination to the head, and this is of more consequence than might at first be imagined; for it is in the commencement of such attacks that such accumulations are most to be feared; and we very effectually overcome this disposition from fixing on the brain, by diverting the flow of blood from it and throwing it upon the intestines, from whence it can be more easily discharged by cathartics, than from the brain, when the determination sets that way. In young subjects, the neutral salts and magnesia, (par. 338,) seem to answer best; in older and aged people, the more active cathartics should be used; as jalap and cremor tartar; or aloes, rendered active by combination with rhubarb, as directed at par. 293. Calomel is oftentimes a valuable addition to the other purgatives; especially where the appearances of the *fæces* discover a redundancy or deficiency of bile.

897. Blisters to the neck, and these repeated occasionally, have been found highly serviceable, after due depletion. Other stimulating remedies have been advised, such as electricity, galvanism, stinging with nettles, mustard, from none of which have we ever seen the slightest benefit derived—for a momentary sensation excited upon the skin, can never change the pathological condition of the brain, which gives rise to the disease. A strict attention should be paid during the whole course of the disease, to the diet of the patient; this should consist of the lightest and most digestible of the vegetable substances—very little or no animal food should be indulged in, even after the disease has become chronic; for one of the best chances of recovery is afforded by not interfering, by stimulating articles of diet, with the recuperative powers of the system. Every kind of liquor must be forbidden.

898. The trials made in this country of the *nux vomica*, do not seem to justify much confidence in its powers; of the *rhus toxicodendron*, and the *arnica montana*, we can say nothing.

899. The cerebral paraplegia is to be treated upon the same general principles; but we fear, that no plan so far can be relied upon. Dr. Baillie however thinks he has derived advantage from cupping, setons, and blisters to the nape of the neck, and free purging by the more active cathartics, as the extract of *colocynth*, jalap, and the neutral salts. He thinks he has seen benefit follow frictions to the lower limbs, for an hour at a time, twice a day; from electric sparks, tepid bathing in fresh and salt water.

900. We are informed by the learned and useful editor of the *Medico-Chirur. Rev.* for April, 1831, p. 477, that “Dr. Pritchard, of Bristol, has drawn the attention of the profession to a mode of treating old and obstinate hemiplegia, and other diseases

of the head, which he has found more successful than any other. He properly observes, that recent cases are to be treated by antiphlogistics, and local depletion, together with the cautious use of mercury; but after these measures have been pursued for a certain time, depletory remedies can no longer be pursued—and counter irritation, with a drain from the vicinity of the disease, is most likely to be beneficial. For this purpose, Dr. P. makes an incision in the line of the sagittal suture, or posterior to that, and fills the incision with peas, which are to be renewed and kept discharging for a considerable length of time. He has employed this method in many other affections of the head with advantage—more especially in cases of stupor, or coma occurring in the course of severe typhoid fevers.”

SECT. IV.—EPILEPSY.*

901. This afflicting disease has triumphed over medical skill from the time of Hippocrates to the present moment; for we dare not but confess, that its treatment is as little understood at this time, as it was in his day. It is true that medical records furnish many examples purporting to be “cured epilepsy,” yet there is too much reason to believe, that some other convulsive disease has been mistaken for it, or else they have been cases of “sympathetic epilepsy.”

902. Much confusion exists in the history and symptoms of this disease; so much so, that no definition has hitherto been given, that is not imperfect, and falls short of what it should be, or else is evidently made to embrace too much, and include part of the symptoms of some other convulsive affection. Thus, we find certain of the symptoms of hysteria frequently blended with those of epilepsy; and what is still more embarrassing, hysteria itself we have every right to believe has been called epilepsy; and cures of this terrible disease have been declared to have been effected, when the physician has only combated some nervous affection. Again, the convulsions incident to childhood, are uniformly included by authors, in epilepsy, with which they have perhaps in their pathology nothing in common; though they have one in their symptoms, namely, the contortions of the body—but convulsions are not the disease, they are only symptoms of disease. Had the convulsions of children the same pathological or anatomical derangement as epilepsy for their origin, we should have an hundred epileptics for one—for who has cured epilepsy? Or who has seen the convulsions from teething, or irritated

* “*Maladie tellement extraordinaire, tellement audessus de toute intelligence, et de toute explication relativement à ses causes et à ses symptômes, que les anciens ont cru qu'elle dépendait du courroux des dieux.*”—*Esquirol*.

bowels, perpetuated through life? Yet it is evident, were they pathologically the same disease, this must constantly happen; for we ask again, who has cured epilepsy? Or who does not admit the liability of children to convulsions?

903. This disease has been defined, "convulsion with stupor," by Dr. Cullen, and of which he makes three species, the "cerebral," the "sympathetic," and the "occasional." Esquirol gives very nearly the same definition; namely, "a convulsive disease with a loss of consciousness." It is evident that neither of these define the disease with the accuracy that is essential to its being well understood; for agreeably to it, hysteria, syncope, the convulsion attending great losses of blood, from teething in children, those which terminate hydrocephalus, &c. would be cases of epilepsy. It is much better, where definition cannot reach the essential characters of a disease, to give a general history of the symptoms as they most frequently occur, and not run the risk of obscurity for the sake of brevity.

Mode of Attack.

904. The patient, if he be not lying, falls suddenly, and becomes instantly convulsed—in some instances every muscle of the body is agitated; at others, they are neither violently nor universally disturbed. The face is violently and frightfully distorted—the eyes protrude from their sockets, sometimes fixed, at other times much agitated; the face becomes red, then purple, and frequently black. The lips project, and often swell suddenly—the mouth is sometimes drawn aside towards an ear; froth is convulsively thrown from it; sometimes bloody from the wounded tongue; inspiration and expiration quickly repeated, making a hissing or sibilating noise. The jaws powerfully drawn together; sometimes including the tongue, which becomes dreadfully wounded; the grinding of the teeth both loud, and powerful; so much so now and then as to break them. At times they are said to shriek violently—we do not believe this ever happens in the idiopathic or genuine epilepsy—this resembles hysteria, and may belong as a symptom to the hysterical sympathetic epilepsy. The hands are so convulsively shut, and the fingers made to press so violently against the palms, that they become sometimes wounded by the nails.

905. The neck or throat swell; the external, and most likely the internal vessels of the head and neck, are so much distended as apparently to threaten bursting. The head executes movements in almost every direction, and to an extent sometimes, that seems to threaten the spinal marrow; or it is rigidly and immoveably fixed, until the paroxysm is about to subside. In a

word, as above stated, every muscle is violently agitated, or rigidly fixed. The thumb is almost always included in the grasp of the fingers, and pressed strongly against the palm of the hand; the patient often strikes himself violently, if his arms are permitted to be free.

906. The pulse is small, frequent, or extinct in the beginning; but as the fit begins to relax in severity, it becomes developed, hard, unequal, and full.* Urine and fæces are involuntarily passed; and sometimes in the male of proper age, the semen is discharged. The face and portions of the body are inundated with a cold sweat; and sometimes blood has been discharged from the eyes, ears, and nose.

907. After a continuance of these symptoms for a longer or shorter time, the convulsive motions are perceived to be less violent; the face loses part of its lividity; changes to a purple, and presently assumes nearly its former condition, if we except swelling of the lips, &c. The respiration becomes less laborious, the inspirations deeper, and the expirations longer; the pulse is frequent, but this soon diminishes to its ordinary standard. The head feels giddy; the eyes look heavy, but stare on vacancy for some time; the limbs relax themselves, and seem to court repose, in which they are oftentimes indulged, by the patient falling into a sleep. From this they generally wake more or less refreshed. At other times, we have seen an habitual epileptic, get up and walk, the instant the fit had passed over, as if nothing had happened. Others, especially females, we have known on the contrary, to be confined to their beds for two or three days after the paroxysm. In no instance that we have seen, does the patient retain the slightest recollection of his sufferings; though for the most part they complain of head-ache, are dull, and apparently have a sensation of shame; but this we believe is peculiar to a combination with hysteria.

908. There is however considerable variety in the force as well as the frequency of epileptic paroxysms; while some are agitated with all the violence just detailed, others are but very slightly, though they may be very frequently affected. We knew one epileptic, who has but one fit each spring; others every few months, others more frequently, while others have them repeated upon every, and very slight occasions.

909. The access of an epileptic paroxysm is often preceded by a very peculiar sensation, called "*aura epileptica*." It is described as a convulsive movement; pain; a sensation of cold, or vapour; it is felt in the head, the face, arms, hands, thighs,

* Dr. Burnett relates a case of epilepsy in a gentleman aged forty-six, which was attended by a pulse, fourteen beats in a minute.—*Med. Chirur. Trans.* Vol. XIII. Part I.

legs, toes, chest, stomach, abdomen, and uterus.* This sensation or affection, is propagated along the members, the trunk, the neck, towards the head, and when it arrives at the brain, the patient instantly loses all consciousness; and either partial or general convulsions ensue; or they may be confined to the member or part primarily affected. The duration of the "fit" is very uncertain; it differs in different individuals, though pretty constantly the same in the same person. It passes sometimes in a few seconds; it may continue a few minutes, or it may last hours—the common period is however from five to fifteen or twenty minutes.

910. Epilepsy has sometimes ceased spontaneously, upon the return of the catamenia, or of a suppressed hæmorrhagy; or of an habitual eruption, when it has been symptomatic, and depending upon the absence of either of these circumstances; but we believe it has never ended in this manner when it has been idiopathic. It has however more frequently terminated in idiocy, or mania. And even if it does not do this, it almost always leaves its characters upon the afflicted patient, if it has been of

* Mr. Rankin gives a case of epilepsy caused by a blow upon the head, which was attended by the aura. In this case it commenced, either in the toe or in the arm. *Edin. Med. and Surg. Journal*, Oct. 1830, p. 318. And in the *Medico-Chirurgical Review* for Jan. 1827, we find under the head of sympathetic epilepsy, two cases, in which the aura was more remarkably developed, than any we have ever met with. As these cases, together with the observations they give rise to, are every way interesting, we shall relate them. "Sympathetic epilepsy.—Two cases of this kind are reported in the *Lancet* of November 18, 1826, as occurring in St. Thomas's Hospital. The first was a boy who had been affected with epilepsy three months, having generally three or four fits per diem. These were preceded by an 'aura epileptica' running from the toes of both feet up along the front of the legs and thighs. The abdomen and chest, at the top of which the two aura met, when the epileptic seizure always took place. The progress of the aura required about a minute, and produced a sensation like that arising from the crawling of an insect. Dr. Elliotson directed half a grain of the cuprum ammoniat. thrice a day, and a ligature to be applied tightly round each thigh at the commencement of the fit. The ligatures were not properly managed at first, and the fits continued; but afterwards they were more strictly attended to, and the fits ceased. The boy was discharged, but again received, the fits having returned. The ligatures were now trusted to entirely, and the paroxysms disappeared. In the second case, the aura epileptica also arose from the feet, and ascended to the neck, where the streams met and the paroxysm occurred. In this case the ligatures were tried but totally failed. It is said however that the height to which the streams of aura epileptica mounted, was gradually lessened. When the report closed, the fits were more severe than at first.

The aura epileptica is one of the most puzzling phenomena of this disease. The stream does not seem to run in the course of any particular nerve, artery, or muscle, but travels over all parts indiscriminately, till it reaches the sensorium. The ligature, we apprehend, will never do much for the cure of epilepsy. It is too mechanical a remedy. It is very unlikely that the real source of the irritation is in the place where the aura appears to commence. The plan of stopping it by ligature has long ago been tried, and failed.

long standing—thus the features become enlarged, the lips thicken, and beauty is sometimes transformed into deformity. The size of the legs and arms are thin and out of proportion to other parts of the body, &c.

Diagnosis.

911. There are several points of resemblance between epilepsy and several other affections; some of which are so marked that we have reason to believe, that one has been sometimes mistaken for the other. Thus in epilepsy, the patient falls suddenly from his feet—the same happens in sudden accessions of syncope and apoplexy; the same we have known to take place at the commencement of an hysterical paroxysm. Foaming at the mouth is a constant symptom almost in epilepsy; yet it is observed sometimes in apoplexy, asphyxia, and in hysteria. Involuntary discharges sometimes take place in epilepsy, so also do they occasionally happen in apoplexy certainly, and perhaps in other convulsive affections.

912. Yet epilepsy differs from apoplexy, in not having stertorous breathing; in there being little or no convulsion; in the pulse being nearly or quite natural; in the paroxysm being vastly more prolonged, and terminating for the most part in two or three days. Epilepsy can scarcely be confounded with syncope, though the initial symptoms sometimes of both resemble each other very much. We knew a lady that would faint without any apparent cause sometimes; and at others, from the slightest—we have seen her suddenly fall upon the floor, be slightly convulsed for a moment, and then display all the genuine symptoms of syncope—that is, she would not breathe, the pulse would be perhaps extinct, death-like paleness, and the muscles of the whole body in a state of relaxation. It has often however been confounded with hysteria, and hysteria with it—hysteria almost always has premonitory symptoms, such as palpitation of the heart; globus hystericus; cold feet; disposition to cry or laugh; and the paroxysm is never so sudden. The character of the convulsions are different; they are more confined to one side in epilepsy, or in a single member. The throat swells in hysteria, as does the abdomen—wind, or borborygmi are almost constant; but above all, there is a recollection of what has happened.

Remote Causes.

913. The remote causes of epilepsy, are said to be very numerous; among the most certain perhaps is hereditary predispo-

sition. This seems to be very generally acknowledged, but the fact is not so generally known, or admitted, that other affections of the cerebral organs, appear to be as certain in their powers of transmission, as epilepsy itself—thus mania and idiotism, seem to perpetuate the same predisposition, as epilepsy does. Does this consist in that peculiarity of the nervous system, which Dr. Cullen terms mobility?

914. It has been insisted on by some, that there is something in the general organization of the nervous system, that disposes to epilepsy; for say they, the female is more obnoxious to it than the male. It is said also, that the character of the female constitution, bears a strong resemblance to the peculiarities of infancy, and hence its liability to epilepsy; because, say they, children from a variety of causes, are more obnoxious to it than the more aged. But before the liability of the female constitution to epilepsy be predicated upon a resemblance to the peculiarities of infancy, two things should first be proved—1st, that this analogy exists; and 2d, that the female are more subject to epilepsy, than the same number of the male at puberty, or adult age.

915. Now, as regards the first, there is no analogy between the two states of the system at the time designated; and if this were the case, it would prove the contrary of what they desire; since we must insist, that children under seven, or even ten, are very rarely afflicted with epilepsy; and when they are, it is almost sure to be traced to hereditary taint, or to some other very evident cause. That they are liable, very liable, to convulsions, we have admitted, (par. 903,) but we must repeat, that “convulsion” is but the sign of disease; and however liable young children may be to irritations that cause convulsions, we utterly deny that they are to epilepsy. First, because the convulsions of children are almost, or perhaps always, preceded by signs that discover this affection about to take place, as is well known to every experienced physician and observing nurse. Second, because the phenomena are unlike; in the convulsion of children, the eyes, the mouth, and the arms are principally affected. Third, when the paroxysm is over, the child lies for the most part in a state of stupor; occasionally even for a long time. Fourth, that the convulsions of children last as a general rule, very much longer, and are repeated very much more frequently, than in epilepsy. Fifth, that those children who may have recovered from the convulsions of infancy, seldom or never have them repeated in after-life—our experience does not furnish us with an instance, though we would not attempt to deny but such a consequence may have followed. Therefore, all that relates to the causes of convulsions in children, as teething, and affections of the stomach

and bowels, should be stricken from the list of remote causes of epilepsy.

916. 2d. We should however be obliged to admit, that the female is more liable to epilepsy than the male, if the accounts of their respective numbers in the Salpêtrière, and the Bicêtre, were correct; or rather, if the cases reported, purporting to be cases of epilepsy, be really and truly cases of genuine epilepsy, though it is altogether at variance with our own observations. We cannot pretend to fix the proportion, that we believe exists between the sexes, who may be afflicted with epilepsy, but at a rough guess, we should think there were three males to a female. Our present knowledge of such cases, would exceed this number, but from this we do not pretend to establish a rule, as proportion must occasionally fluctuate. In the hospitals just named, the imputed proportion, is considerably greater with females. In this however there may be great error, from confounding all convulsive diseases under one title.

917. Errors in diet, too great exposure to the direct rays of a hot sun; the intemperate use of strong liquors; irritating substances taken into the stomach, are said to have produced epilepsy. The removing of eruptions of long standing from the skin; healing up of ulcers; the suppression of customary evacuations; and the sudden check of perspiration, have sometimes produced epilepsy in soldiers, agreeably to military surgeons; but these can only be exciting causes.

918. Esquirol even confounds the occasional convulsions of eruptive diseases with epilepsy; for among the causes producing symptomatic epilepsy, he enumerates the small-pox, the measles, the scarlet fever when they are about to show themselves upon the skin. Labour, anger, mortification, &c. have also agreeably to him produced epilepsy. That labour has had convulsions to accompany it sometimes, we well know—but these convulsions are not *epileptic convulsions*, strictly so called; first, because they always have premonitory signs a longer or shorter time—we have known instances in which head-ache, giddiness, and imperfect vision has preceded the convulsions many days, or hours; second, we have every reason to believe, that under the circumstances just mentioned, convulsions have been frequently prevented by the loss of blood; but genuine epilepsy is not prevented by this means, however carefully and regularly attended to; third, such patients as have escaped with life, from puerperal convulsions, have never had a recurrence of them, so far as we have observed; not necessarily even during their subsequent labours; fourth, in an epileptic female, whom we attended many years, we never observed the slightest injury to arise from the occur-

rence of a fit, during any period of pregnancy, in the height of labour, or immediately after—now, all who are at all versed in obstetrics know, that the convulsions of labour, unless purely hysterical, are replete with danger.*

919. And as regards the convulsions which précède eruptive diseases, every body knows that in general they are free from danger, however alarming they may be in appearance; and these, like all those already mentioned as belonging to childhood, are never repeated in after-life.

920. With respect to the agency of moral causes, we have little to say from our own observation, never having seen an unequivocal instance of it; yet we can readily believe, that they may be among the most certain, and most common of the exciting causes—for they can be no other. On this point, *post hoc, ergo, propter hoc*, has been tenaciously and faithfully observed; yet it may not always be true. Esquirol cites a number of instances in support of the agency of these causes.

921. When epilepsy has once taken possession of the system, slight causes, whether moral or physical, will sometimes produce a return of the paroxysm, provided the time for a return be at hand—but for the most part, they observe periodical movements; and when the period has arrived, the “fit” takes place without the necessity of any exciting cause; as happens in intermittent fever. Our own experience, therefore, will not permit us to agree with Esquirol, that “the application of the same kind of exciting cause that produced the original paroxysm, though of inferior force, will produce a renewal of an epileptic paroxysm;” unless indeed, the period at which it is wont to return, be at hand. When causes operate in the manner declared by him, it is most probable that hysteria has much to do with the paroxysm. The lady whose case we have just mentioned, has often been tried by moral causes of apparently sufficient force to produce a paroxysm of hysteria in constitutions liable to this affection; yet with her we have never known them bring on her “malady,” unless it may have been at the period of its return—we have witnessed her grief at the loss of a child; and we observed her agony at the sudden death of a husband to whom she was much devoted; but in neither instance did her epilepsy obtrude itself. Now, these “causes,” as is well known, would have excited hysteria, and in some instances even for the first time, yet this lady had neither epilepsy nor hysteria, to accompany the grief occasioned by her bereavements.

922. The remote causes of idiopathic epilepsy, must necessarily operate some change either in the brain, or its dependen-

* See System of Midwifery, by the author, Art. “Puerperal Convulsions.”

cies; but in what these changes consist, it is difficult, if not impossible at this time to prove. Many of the causes enumerated as capable of producing epilepsy, can only cause this disease by acting upon this condition; or in other words, when an epileptic paroxysm is called forth, the brain or its appendages must be in a particular condition, to be operated upon by these exciting causes; but that it is not essential to epilepsy to have these causes constantly present, to produce a "fit," since we see this take place without their agency. It would seem then, that the pathological condition of the brain or its appendages, may differ in degree; one, requiring the operation of some evident exciting cause; while the other subjects the system to periodical returns of convulsive movements without such agencies.

923. If this be true, plethora, irritations of the digestive organs, and all the moral agencies, can be but exciting, and not predisposing causes to epilepsy. The same may be said of the suppression of customary evacuations, or affections of the skin, &c. for we do not believe that either of them can produce that pathological, or anatomical condition in the brain and nervous system that is essential to true epilepsy—we admit they may give rise to convulsions, but we have already sufficiently insisted, (par. 902,) that convulsions is only a symptom of disease, and is not the disease itself.

924. So little positive is known of the pathology of epilepsy, that no two authorities scarcely admit the same proximate cause. In most instances, dissection has only revealed certain departures from healthy structure, and which may perhaps be claimed rather as the consequences of epilepsy, than its cause. We shall however relate in a very brief manner, the various observations upon this point, which have been collected with much industry by Esquirol, in his essay upon this subject, in the *Dict. des Sciences Med. Art. Epilepsie*.

925. "Leduc has noticed the heads of epileptics are larger, the cranial bones thicker, and the sutures often effaced."

926. "Bonté has seen the head deformed; and Morgagni has several times seen the same thing."

927. "Bonté once found the occipital bones nine lines thick; and Zacchius found the inner table of the skull destroyed by caries."

928. "Bontius saw a child of six weeks old thrown into an epileptic fit by the pressure of its cap, (beguin;) but which was cured by its removal." The same relates, "that a young man became epileptic from a stroke upon the head, in his infancy."

929. "Bony concretions are frequently found upon the dura mater, and upon the falciform process—these are sometimes round, sometimes drawn out and pointed."

930. Esquirol says, "in dissecting an epileptic, aged twenty-three years, who died in the fit, I found adhering to the internal face of the dura mater an osseous tumour of an oval form, eight lines in breadth, and depressing the superior convolutions of the brain."

931. "The vessels of the meninges have been found dilated, engorged, varicose, containing fibrous concretions, and even bone."

932. Morgagni says, "in a woman who had been epileptic for two years, he found the lower part of the anterior third of the left lobe of the brain very soft; in eight epileptics, the brain was found soft, by Greding. Morgagni, Greding, Meckel, and Boerhaave, found the brain hard, even callous."

933. The capacity of the ventricles, the presence of more or less water, serous cysts developed in the substance of the plexus choroides, offer varieties without end, and "without furnishing any positive data."

934. "Scirrhus, adipose, and osseous tumours have developed themselves in the ventricles and the substance of the brain. Bauhin and Borrichius have seen abscesses in the substance of the brain."

935. "The pineal gland has been found to contain osseous concretions, very often, yet no conclusions can be drawn from the circumstance. Baillie and Sæmmering have found this gland preternaturally firm; Greding has met with it soft in twenty-five epileptics, and in twenty it was surrounded by serum."

936. Wenzel has made many observations upon the glandula pituitaria, which he found in almost every condition it was susceptible of, without any particular alteration of the brain itself; he found many also in the pineal gland, "without these lesions enabling us to conclude whether they were the cause or the effect of epilepsy." Many other anomalies might be produced to prove, how little light has been thrown upon this subject by pathological research; and how unsafe it would be to draw any other inference, than, that so far, we know nothing of the pathology of epilepsy.

937. We shall conclude this brief history of cerebral lesions, with the reflections of Esquirol upon this point. He asks, "what conclusions can be drawn from all these researches, particularly those of Bonet, Morgagni, Baillie, Greding, Meckel, and Wenzel? None, unless it is that the same lesions have been found in subjects who were not epileptic, as has been proved by Wepfer, and Lorry. Let us then honestly confess, that pathological anatomy has not up to this moment thrown the least light upon the immediate seat of epilepsy. But let us not be discouraged; nature will not always resist our efforts. What

shall we say to the numberless reveries that have been promulgated upon the proximate cause of this disease? The ancients attributed it to the influence of the moon, and to the vengeance of heaven, or to enchantment. Have the moderns explained the subject by their own systems? Where shall we find the matter that irritates the nerves? Who has seen the animal spirits; who has measured the power of their elasticity? Some have attributed it to the power of an archæus; to a tumultuous and confused movement of the vital principal of the rational soul. Hoffmann attributes it to a derangement in the course of the humours, which prevents the distribution of their spirituous parts. Some others declare it to be owing to a contraction of the dura mater, the envelopes of the brain, and the nerves, &c. &c."

938. Esquirol proceeds to an analytical view of the causes which produce the symptoms that characterize, and the organs involved in epilepsy; but without its tending to any practically good purpose; for of the mode of curing this disease upon firm and rational principles, we are entirely ignorant: that there has been occasionally a cure of idiopathic epilepsy, we are disposed to hope; that there has been instances of success in the symptomatic, we have every reason to believe, though we fear not to the extent that medical record declares. For when these cases are carefully examined, too much reason is found for the belief, that hysteria under some peculiar form has been mistaken for it; and if appeal be made to the convulsions of childhood, arising from teething, &c. as instances of the cure of epilepsy, we utterly deny the sameness or identity of the diseases, and for the reasons already declared, (par. 902.)

Prognostic.

939. This disease, though eventually fatal, is rarely so in its commencement; and when it proves so, it is perhaps most frequently by the production of other diseases, or extreme exhaustion. The cases most decidedly intractable, are those which arise from hereditary predisposition. When it is sympathetic it is occasionally a curable disease; and this is also said of the idiopathic form. Those who may be attacked in early life with *epilepsy* remain incurable, unless a favourable change take place at puberty. Those attacked between the fourth and tenth year, may be cured by proper treatment; and if seized near the time of puberty, are cured when that period arrives; if after puberty, they are sometimes relieved. Marriage cures no other than genital epilepsy; it augments the other species. Women incur great risk from epilepsy during pregnancy. When the "fits" become more frequent and increase in intensity, we have reason to fear

death. Death does not take place during the paroxysm, but after it, from exhaustion. Epilepsy combined with mental derangement is never cured.

940. It will be seen from this short detail of the prognostics in epilepsy, that much confusion prevails; or rather a constant blending of affections of a convulsive kind, with the true or idiopathic epilepsy. Thus the cases which are said to be relieved by puberty, cannot be idiopathic epilepsy; since it is relieved by a functional process of the uterus in females, and of the testicles in the male, neither of which can change the state of *disposition* of the brain and nervous system so entirely, as to prevent the action of other exciting causes. The same may be said of the effects of marriage; that is, it cures an affection of the uterus, called epilepsy, (which is nothing but a modification of hysteria,) while it augments a genuine epilepsy. We have already remarked upon the convulsions of pregnancy or labour, (par. 918.)

Treatment.

941. What plan of treatment has ever succeeded in curing epilepsy? We regret to answer, none! Has epilepsy ever been cured? We fear we shall but declare a most unwelcome truism, when we also answer this in the negative. We mean not to deny that patients *supposed* to have had this disease, have been cured; and that others who were perhaps truly epileptic, *have got well*; but in the true meaning of the word, we fear it has never been *cured*. These assertions are founded upon the many hundred failures, to a single cure; and the same remedy not succeeding twice in the same hands, or perhaps ever again in the hands of any body. For it is a melancholy truth, that *a cure for epilepsy*, is no sooner announced, than it never again proves successful, however often, or faithfully it may be tried.

942. Does not the multiplication of quack, or specific remedies, emphatically declare, the impotency of every regular mode of treatment? Where now is the lauded power of the nitrate of silver,* of arsenic, of steel, of zinc, of musk, of opium, the load-

* Though this remedy has never succeeded in our hands, it seems but fair to put the reader in possession of the experience of others who have employed it—we therefore select the following account, from the *Medico-Chirurgical Review* for January, 1827, p. 241.

“*Epilepsy cured by nitrate of silver.*”—“Dr. Balardini has added one to the many instances on record of the efficacy of this remedy in epileptic fits. The patient was a young woman, aged twenty-one years, who from infancy, was subject to this complaint. It had now become very severe, very frequent, and the paroxysms often followed by temporary alienation of the mind. Various remedies had been used in vain, when Dr. B. gave the *argentum nitratum* a fair trial. He commenced with two grains a day, and gradually increased the

stone, the bark, the mercurials, and an hundred others of equal celebrity, but of less power? They have one and all passed into an oblivion from which they will perhaps never be recalled.

943. Where convulsions, call them epileptic if you please, depend upon an anormal condition of some other organ than the brain, by treating such affections successfully, we may arrest the sympathetic affection; but in these instances, we only cure an affection of some organ in which the disposition to epilepsy did not exist, and altogether different from epilepsy; but we do not *cure* epilepsy strictly speaking; in this case, the convulsion is prevented, because the disease on which it depended has been relieved; and a proof that we did not cure epilepsy directly, is, that our remedies were not addressed to its seat, nor from their nature were they calculated to directly relieve epilepsy. It is agreed that nothing can be done in the "fit," except perhaps to abridge its duration—this is done sometimes by blood-letting; by cold water dashed in the face; by removing all confining ligatures from the throat and waist; by elevating the head of the patient, and giving him fresh air. Dr. Reid* however appears to have more confidence in certain mechanical means in interrupting a paroxysm of epilepsy than we have allowed ourselves to indulge in; and if the plan proposed by him, is really followed by the effects he states, it merits consideration. His treatment consists of one of two methods. 1st. "Forcibly extending the hands and opening the fingers of the patient." The 2d, and agreeably to the author of the paper, the more powerful is to be accomplished "by pressing the closed hand of an assistant forcibly on the soft part of the abdomen, towards the spine, while the patient is firmly supported on the back, with the head and shoulders raised."

944. In hysteria, a condition every way analogous, we are certain we have seen mischief follow the first plan.

945. Dr. Gregory lays down the following concise directions for the management of the patient in the intervals. 1. To re-

dose. The medicine was continued three months, and never produced any bad effects. Occasionally it acted slightly on the bowels. The patient was cured.

"We are inclined to think that this medicine will be more used than heretofore. If epilepsy be dependent on organic disease of the brain, we do not see that the nitrate of silver can do any harm, but probably good, if due attention be paid to local evacuations from the head, and counter irritation. If, as is very often the case, the disease be connected with irritation in the *primæ viæ*, there is no other medicine more likely to remove this irritation, or at least to remove the morbid sensibility of the gastric and intestine nerves, than the nitrate of silver.

"Dr. Darwell also gives the history of an interesting case of epilepsy which was permanently relieved by this remedy, in doses of five grains three times a day."

* Dublin Transactions, Vol. IV.

move all sources of irritation. 2. To moderate the afflux of blood upon the brain. 3. "The last, though not the least," to alter that morbid condition of the nervous system, on which convulsion depends.

946. Let us see how these indications are directed to be fulfilled; and notice with what propriety the first can be considered as applying to the treatment for which the indication is laid down. In "*epilepsies* of infants and children much may be done by free scarifications of the gums; by the administration of an emetic; by occasional smart doses of purgative medicines; by the more liberal use of mild aperients and absorbents; and by strict attention to the diet and regimen." We have already said, (par. 915,) that convulsions from teething, and intestinal irritation in children, are not the convulsions of epilepsy; we shall therefore rest our objections to the views of Dr. Gregory, upon what was then said. If we are correct in *our* views, the fulfilment of this first indication cannot be looked upon as referring to epilepsy.

947. And when it is proposed in epilepsy depending upon the state of the uterus, can the indication under consideration be fulfilled, by "the warm bath, or semicupium; *stimulating* enemata; *relaxing* medicines, as the *antimonial* diaphoretics, and the *different kinds of emmenagogues*; regular exercise; occasional purgatives; issues or setons." Will these remedies remove all the sources of irritation?

948. "The second principle in the treatment of epilepsy is the obviating general plethora"—this is to be done by blood-letting, by diet, by exercise; abstinence from liquors, and bathing the head and neck with cold water; cupping, blisters, and the steady use of purgatives, &c.

949. The third is to be fulfilled by "the exhibition of narcotics, as camphor, opium, hyosciamus, and stramonium." Now we would ask for information, whether a genuine epilepsy was ever benefited by the observance of these "principles?"

950. Will it be fair to predicate the present incurable nature of epilepsy upon our own want of success in this disease? Certainly it will; for in our attempts to cure this disease, we have constantly followed the rules that have been laid down, and exhibited the remedies prescribed and extolled by others—we had no opinions at one time of our own upon this subject; for when we attempted to treat it, it was by implicitly following the rules of others. Our failures have been constant; and we are free to confess that we have never succeeded in curing epilepsy, properly so called, in our lives, though we have in one instance succeeded in relieving a lad who had periodical "fits," that followed on intermittent fever, by the use of Fowler's solution; and

at present we have very much moderated the same kind of paroxysms in a man, who has had an intermittent of long standing, and by the same remedy—yet we dare not say we have ever cured epilepsy, especially as we do not believe that either was a case of this kind.

951. From all this we must conclude; 1, that much confusion exists upon the subject of this disease; other affections being constantly called epilepsy; 2, that the convulsion from teething, &c. in children; and hysteria in women, are not under any modification, epilepsy; 3, that the instances of relief, purporting to be cures of epilepsy, have been, (with very few, if any exceptions,) some other affections; 4, that to the present moment, we are not more enlightened as regards the pathology of epilepsy, than they were in the time of Hippocrates; 5, and that at this moment, it must be looked upon as an incurable disease.

952. We shall conclude our observations on epilepsy by quoting the following observations:—"In all cases of epilepsy, it is of great consequence to keep the nervous system in a quiet state, and especially those organs with which the brain more immediately sympathizes. Although the cause, as structural disease in the brain cannot be removed, it may be rendered dormant, by tranquillizing the nervous system. With this view, all the mineral and vegetable anodynes and derivative irritants have been recommended, and each has had its warm advocate; especially the prussic acid, colchicum, hemlock, henbane, deadly nightshade, arsenic, quinine, sulphate of quinine, aconite, &c. By rendering the system unsusceptible of epileptic derangement for many months, by the regular, judicious use of an anodyne, the local cause may undergo such a change as to remain dormant for life."—*Rees on Costiveness*, p. 238.

SECT. V.—CHOREA SANCTI VITI, OR ST. VITUS' DANCE.

953. The disease about to be described, acquired its name in Germany, where it was first noticed, in consequence of persons who suspected themselves to be afflicted with this curious convulsion, performing an annual pilgrimage to the Chapel of St. Vitus, where they danced night and day with the view of curing it; since that time, the Greek word choreia, or chorea, which signifies "dance" has been substituted.

954. This affection was first well described by Sydenham; and since more extensively and accurately by Dr. James Hamilton of Edinburgh. Sydenham describes it as, "a kind of convulsion, which principally attacks children of both sexes, from ten to fourteen years of age. It first shows itself by a lameness or rather unsteadiness of one of the legs, which the patient draws

after him, like an idiot, and afterwards affects the hand on the same side, which being brought to the breast, or any other part, can by no means be held in the same posture for a moment, but is distorted or snatched away by a kind of convulsion into a different posture or place, notwithstanding all possible efforts to the contrary. If a glass of liquor be placed in the hand to drink, before the patient can get it into his mouth, he uses a thousand odd gestures; for not being able to carry it in a straight line thereto, because his hand is drawn different ways by the convulsion; as soon as it has reached the lips, he throws it suddenly into his mouth, and drinks it very hastily, as if he only meant to divert the spectators."

955. To this description, Dr. Hamilton adds a number of circumstances every way important to the history of the symptoms, that discover the commencement, and mark the progress of this oftentimes very afflicting disease. He thinks those who naturally possess feebleness of stamina, or who may have suffered in their constitution from disease, are most obnoxious to chorea. The period of its attack is from eight to fourteen; but Dr. H. saw two females attacked with it, who had arrived at from sixteen to eighteen years. To this may be added, that we once saw it in a married woman of twenty-five, and this during pregnancy, and from which she was relieved by bleeding, purging, and the sulphate of zinc.

956. Dr. H. says "the approaches of chorea are slow." This however, is not always the case; we once saw it in a little girl of seven years, suddenly induced, in consequence of a previous intermittent of four paroxysms. It is generally however, preceded by symptoms which denote a loss of power in the digestive organs; at the same time, some involuntary motion of different muscles may be observed, particularly of the face. The convulsive motions are not confined to any particular muscles; they may exist in those of the extremities, of the lower jaw, the head, or the trunk.

957. These motions differ in degree or force; they are however constant, except during sleep; deglutition and articulation become impaired; the eyes become heavy; the countenance pale and vacant, even to the appearance of fatuity; which, if the disease persist, will really take place. Fever rarely exists; but the body wastes, and the digestion becomes impaired, as the common consequences of chorea.

958. There are two species of chorea; the idiopathic and sympathetic; some have attempted greater divisions, without advantage to the mode of cure.

Idiopathic Chorea.

959. By this term is to be understood, such instances of this disease, as are neither the symptom, nor the effect of any preceding disease. This may occur during any part of the period designated above. This species is generally preceded by feelings of uneasiness, paleness, head-ache, pains in the limbs, loss of appetite, &c.

Predisposing Causes.

960. We have remarked above, (par. 955,) that children and others of debilitated habits were more obnoxious to this complaint than those of confirmed health, and when the change of the constitution from infancy to puberty, is about establishing itself, the nervous system is very apt to be more disposed than usual to be acted upon; especially if the parents of such patients have been disposed to nervous affections. Indeed, it is evident, there is some circumstance connected with the condition of the nervous system at this period of life, that disposes to, or invites an attack of chorea; as it is rarely seen in adult age, and never in old age.

Exciting Causes.

961. Whatever is sufficient to agitate the nervous system powerfully is sufficient, in patients disposed to this disease, to produce chorea; hence frights, anger, distress of mind, and even, according to Geoffroy, inflammations or frettings of the genital organs, will induce an attack.

Prognostic.

962. This disease, when uncomplicated, is never we believe dangerous; it is therefore only necessary to attempt to ascertain its duration. This will of course be very much influenced, by the age, the nature or strength of the constitution, and the force and continuance of the exciting and predisposing causes. If the patient be very feeble, and the attack severe, the risk of its continuance will be increased, and on the contrary; but this is not constant. We have seen two instances of very obstinate chorea, in patients who were very far from being weak; and we have seen it removed very speedily in two others, where the patients were very much debilitated. If it attack before puberty, it is sometimes immediately relieved by the eruption of the menses. We once visited a patient violently affected with chorea, and on

which the slightest impression could not be made, though she was several times bled, liberally purged, and rigorously dieted, for three months; her pulse maintaining its force throughout the whole period, when she was suddenly relieved by the appearance of the catamenia, though the patient was under thirteen years of age.

Treatment.

963. This disease has almost constantly been classed among the nervous affections; hence the place given it by both Cullen and Pinel; while Sauvage ranked it with the spasmi. These nomenclological locations, had a most unfortunate influence upon the treatment of this disease, for it naturally led to the exhibition of tonics and antispasmodics; hence the indiscriminate and almost universal use of bark, steel, camphor, opium, oil of amber, musk, zinc, all the vegetable bitters, and electricity, until Dr. Hamilton happily revived, and successfully extended, the practice of Sydenham in this disease.

964. It occurred to him, "that the debility and spasmodic motions, hitherto so much considered, might not be the leading symptoms of the disease, but might depend upon previous and increasing derangement of health, as indicated by irregular appetite, and constipated bowels."

965. "Under this impression with regard to the erroneous opinions which I had heretofore entertained concerning the nature of the disease, and the consequent improper treatment which I had employed for the cure of it, I resolved to alter my mode of treatment, in order that I might fulfil those indications which the new, and as I flattered myself, the more correct view of the disease had suggested."

966. Under these impressions, he began the cure of chorea by purgatives; he commenced with the weaker cathartics, but he soon found the stronger were necessary, as almost constantly indurated fæces were discharged by them. He could not however determine by any sign, the cases in which these existed in the greatest quantity; he nevertheless came to the conclusion, that the duration of the disease, and the reduced state of the patient, give rise to the greatest quantities.

967. In the commencement of the complaint, where the intestines retain their sensibility, and "before the fæcal accumulations become great, gentle purgatives, repeated as occasion may require, will readily effect a cure, or rather will prevent the full formation of the disease. In the confirmed stage, more powerful purgatives become necessary; they "must be given in successive doses, in such a manner that the latter doses may support the effects of the former, till the movement and expulsion

of the accumulated matter are effected, when symptoms of returning health appear. Whoever undertakes the cure of chorea by purgative medicines, must be decided and firm to his purpose."

968. The recovery from chorea is slow and gradual—but appetite is renewed, strength accumulates, and the patient is restored after a time to a usual state of health. But it is necessary after these favourable changes take place, that the bowels be occasionally moved by purgative medicine.

969. Tonics may now be employed; the vegetable bitters, and chalybeates are the best for the purposes of the system. The regimen should be light and nourishing, and exercise in the open air should come in aid of the tonics.

970. Geoffroy recommends for female patients, bleeding in the foot, or the application of leeches to the vulva, where the disease appears to depend upon the suppression of the menses, or where this discharge is due, but does not appear. In addition to the use of purgatives, we can with great confidence recommend the use of the lancet, whenever there is head-ache, febrile irritation, and an active pulse. During the whole of the time in which the depleting plan is carrying on, the diet should be exclusively vegetable, unless some circumstance of the stomach forbids its use—their drink should be water. "A series of tartar emetic plasters along the spine, together with purgatives, combined with the nitrate of silver, is recommended as an effectual plan of treatment. A grain of the nitrate of silver, with five grains of the compound extract of colocynth, and two of the pilula hydrargyri, was given for several weeks, by which the alvine excretions were brought to a natural condition from the most vitiated state we ever beheld. The power of walking increased as the secretions and excretions improved." *Medico-Chirurgical Review*, Oct. 1829, p. 483. The tartar emetic ointment applied to the scalp until a plentiful eruption is produced, is also much extolled. *Ib.* Dupuytren treats this complaint by cold bath and cold affusions. The patient is to be held in the bath for a moment, and the immersion is to be repeated five or six times in the course of fifteen or twenty minutes. The immersion produces violent spasms of the muscles and particularly those of the chest. The sensation felt by the patient is highly disagreeable, being that of immediate suffocation, but this feeling is very evanescent; the patient is to take exercise for half an hour or an hour after the bath, and this should be of an active kind. The symptoms gradually abate, and the disease cured in the course of fifteen or twenty days, that may have existed for years previously. Simple affusion of cold water on the head and body repeated six or seven times in succession, produces the same good effect. When women are the subjects of this disease, affusion is preferred to the bath.

971. We should not however in the treatment of chorea confine our views too exclusively to the state of the intestinal canal, as there is strong reason to believe that a morbid condition of the spinal marrow or even the brain itself, may be the original cause of this disease; for it is now a well ascertained fact, that the large nervous masses, or the nervous ganglia, may be in a pathological condition, while the phenomena to which this condition gives rise, may exhibit themselves in portions of the body remote from their seat. Hence, the success attendant upon the plan just named above, of the application of the tartrate of antimony to the spine. It would therefore accord best with careful practice, to examine cautiously the state of the spine in all patients labouring under chorea. This should be done, by having the spine exposed, and then slowly and firmly making pressure upon it, from the first cervical vertebra, to the last of the dorsal, at least. If during this examination the patient discover or declare the existence of tenderness in any particular portion of the spinal column, remedies should be first addressed to the tender portion of the vertebræ—leeching should be premised; or even repeated at the interval of a few days. This may be followed by blistering or by the tartar emetic ointment.*

SECT. VI.—TETANUS.

972. There are few diseases more deeply distressing or more certainly fatal, than tetanus. This disease is divided by nosological writers, into several species; as opisthotonos, emprosthotonos,† trismus, &c. Upon this division of tetanus, Dr. Cullen

* Dr. Jesse Young (*a*) has lately directed the attention of the medical public, to the use of the black snakeroot, (*circicifuga racemosa*), for the cure of chorea, and in which he appears to have great confidence. He has given four or five cases as illustrative of its efficacy, which appear entitled to confidence. He orders a tea-spoonful of the powdered root three times a day in almost any vehicle. If it offend the stomach when taken before breakfast or other meals, its exhibition may be delayed until an hour after each meal. He appears in every case he has related to have continued its use, with but occasional interruptions, until the symptoms have disappeared.

† It has been doubted by some, whether this form of tetanus can possibly take place, because the muscles on the anterior portion of the body are much fewer in number as well as much weaker in power than those that antagonize them on the posterior part of the body. But we have the authority of Larrey and others for that species of tetanus, called emprosthotonos. Larrey says, "in wounds that cause traumatic tetanus, if it be the nerves of the anterior region of the body that have been wounded, I have remarked, that emprosthotonos is the consequence; while on the contrary, opisthotonos takes place, when the nerves of the posterior portion is wounded, and if the wounding cause has traversed a part so as to affect equally both planes of nerves, tetanus becomes completely established, and throws the body into a straight line."—*Clinique Chirurgicale*, tom. I. p. 85.

(*a*) Amer. Jour. of the Med. Sciences, for Feb. 1832.

very justly remarks, all these several terms, denote but different degrees of one and the same disease. In this, we believe all practical writers agree, as it appears every way certain that the remedies that may conquer one, will overcome either or all the other varieties.

973. This disease consists of tonic convulsions, or permanent rigidity of a part, or of the whole of the voluntary muscles of the body. It sometimes invades suddenly; but at other times, it slowly arrives at its height. When its approach is slow, a rigidity of the muscles of the neck is perceived, attended by pain when the head is moved; a sense of uneasiness is also felt about the root of the tongue, some difficulty in swallowing, and eventually this faculty is entirely interrupted. A distressing pain is now felt at the lower extremity of the sternum, which darts backwards to the spine. At this period, the head is pulled backwards, and the muscles employed in this action, are thrown into spasm, while those serving to elevate the lower jaw become rigid, and so closely press the teeth upon each other, as to leave no space between them. When the spasm is confined to the parts just named, the disease is called *trismus*, or *locked jaw*.

974. The pain situated at the extremity of the sternum, now recurs frequently and most painfully; and is sure to be accompanied by spasms in the muscles on the back of the neck. This painful affection is not always limited to the parts just named—it frequently travels down the muscles connected with the spine, and bends the body backwards; and thus constitutes the species called *opisthotonos*. The lower extremities become rigidly extended, as both the extensors and flexors, are equally beset by spasm; while the muscles of the abdomen are violently retracted through the whole course of the disease, and in point of hardness resembles a plane of board.

975. “At length,” says Dr. Cullen, “the flexors of the head and trunk become so strongly affected as to balance the extensors, and to keep the head and trunk straight, and rigidly extended, incapable of being moved any way; and it is to this state the term *tetanus* has been strictly applied. At the same time, the arms little affected before, are now rigidly extended; the whole of the muscles belonging to them being affected with spasms, except those that move the fingers, which often to the last, retain some mobility. The tongue also long retains its mobility; at length it also becomes affected with spasm, which, attacking certain of its muscles only, often thrusts it violently out between the teeth.”

976. “At the height of the disease, every organ of voluntary motion seems to be affected; and amongst the rest, the muscles of the face. The forehead is drawn up into furrows, the eyes,

sometimes distorted, are commonly rigid and immoveable in their sockets; the nose is drawn up, and the cheeks are drawn backwards towards the ears, so that the whole countenance expresses the most violent grinning. Under these universal spasms a violent convulsion commonly comes on, and puts an end to life." Cullen. When death ensues, it is generally from an engorged state of the brain, or apoplexy.

977. "These spasms are every where attended with most violent pain. The utmost violence of spasm is, however, not constant; but after subsisting for a minute or two, the muscles admit of some remission of contraction, though of no such relaxation as can allow the action of their antagonists. The remission of contraction gives some remission of pain; but neither is of long duration." Cullen.

978. These painful contractions are however easily reexcited, by any attempt at change of posture, or of motion; even speaking, or an effort made to swallow, will renew them.

979. Tetanus is rarely attended by fever—in this most authorities agree;* and little or nothing is to be learned from the pulse. "From the state of the pulse," says Dr. Hennen, "I have derived no clue to either the proper treatment, or the probable event." *Military Surgery*, p. 250. While Dr. Caldwell says, "we do not recollect ever to have seen a case of tetanus, in which the patient was entirely exempt from febrile action. At the commencement of the disease, the pulse is oftentimes full and frequent, tense and strong. Blood drawn at this time throws up a covering of coagulating lymph." *Note to Cullen's First Lines*. But all this does not prove fever to be essential to the disease. Dr. Cullen says, "although fever be not a constant attendant of this disease, especially, when arising from a lesion of the nerves; yet in those cases proceeding from cold, a fever has sometimes supervened, and is said to be attended with inflammatory symptoms." As regards our own experience in tetanus, it has been confined altogether to cases of the traumatic kind, and produced by punctures, or slight incisions; in no one instance of these, was there any decided evidence of fever; it is true, the pulse was accelerated, and even tense and active; but these appeared to be rather the effect of pain and muscular exertion, than evidence of febrile excitement. For as a general rule we have

* The evidence of Fournier-Pescay, is in direct opposition to this general statement; he says, "the skin is dry and burning; the pulse is accelerated, hard, full, and sometimes convulsive." "Those who have declared that tetanus is not generally attended by fever have not studied the disease; and the assertion of Hillary, that when tetanus is produced by a wound, or an operation, it is unattended by fever, is unworthy of belief." *Dict. des Scien. Med.*, art. Tetanos.

found the skin below the natural standard of heat; and rather shrunken or collapsed, in its appearance. We think however with Dr. Cullen, that it may accompany certain of the cases, arising from cold;* and we add, when the disease has been produced by extensive injuries. Dr. Cullen is unwilling to admit the "inflammatory crust," as he says, that the blood drawn in this disease never exhibits it. But if this were even a common occurrence, we now know, that this appearance does not always depend upon inflammation. In the case however as just mentioned, from Dr. Perry, the blood was sizey at first.

980. The mental functions are rarely disturbed in tetanus; unless perhaps it be when the patient is absolutely in articulo mortis—for we have seen them preserve their senses to the last moment of life. Indeed few of the natural functions are much impaired; we have known a keen relish for food continue to the last, and the digestive powers remain apparently unimpaired. The bowels it is true, are obstinately costive; but whether this be one of the characters of the disease, or only the effect of the general mode of treatment, is perhaps doubtful; we are however disposed to believe it belongs essentially to tetanus; since nearly all the muscular structures are deeply implicated in this affection; it is therefore probable that the peristaltic motion of the bowels is diminished, as well as the muscular powers of the bladder, as the urine is sometimes suppressed, or is voided with difficulty.

Causes.

981. The remote causes of tetanus are much better ascertained, than the mode of cure. The remote causes may be divided into general, and local; and these causes, have given rise to the division of idiopathic, and symptomatic, or traumatic tetanus.†

* In one of the cases related by Dr. Perry, (American Jour. of the Med. Sciences, for Nov. 1831,) the disease was brought on by scalding, the pulse was 100 on the second day after the accident, and the tongue white and moist, and the first cup of blood was sizey; these symptoms may perhaps with much propriety be said to be febrile, as it is perhaps very probable, that fever would have attended the wound alone; and this may have been the source of the febrile state of the system. So in other instances of tetanus from extensive lesion, fever may be a concomitant from this cause; but is not an essential condition to this disease. This is rendered the more probable, as by far the greater number of the cases of tetanus that we witness, arise from slight and apparently insignificant, wounds; wounds, which as mere lesions, would not have excited the vascular system to inordinate action.

† Fournier objects to the term traumatic tetanus; he says, that, "tetanus, from whatever cause, or whatever may be the previous pathological condition of the patient, is always identical in its nature, and consequently we cannot divide it into species."

The former, or the idiopathic tetanus is occasioned by exposure of the body, to sudden changes in atmospheric temperature; and especially where the range of the thermometer is high, during the day, and considerably diminished during the night*—hence this affection is much more frequent in hot, and intertropical climates; and in these, in particular locations; as for instance, near the seacoast, or on highly elevated situations. The long continued operation of heat, disposes in a remarkable manner to the production of tetanus, by exalting the sensibility of the nervous system, and the irritability of the muscular. It also augments cutaneous transpiration in a remarkable degree; and thus rendering the surface of the body more susceptible to the influence of changes in atmospheric temperature. But if we are to credit Schmucker, “tetanus, (symptomatic,) occurred very frequently in the Prussian army from slight wounds in the mountainous districts of Bohemia, where in summer the days are extremely warm, and the nights uncomfortably cold.” (Eberle.)

982. All classes of people are obnoxious to tetanus in tropical countries; it spares no age, nor respects either sex, though the male is said to be more liable to it than the female. This may be perhaps satisfactorily accounted for, from the man being more liable to both the remote and exciting causes of this disease.† A disordered state of the alimentary canal, has also been said to give rise to this affection. Carrying a dead child in utero, has been charged by Dr. Eberle with producing tetanus—both of these conditions however, we are of opinion have been assigned as causes of this disease, *post hoc, ergo propter hoc*. Especially the latter, as children dying in utero is very common, yet we believe this is the only instance upon record, where tetanus has been said to be caused by it. And we are of opinion that Dr. Eberle’s own account of the case, will furnish a sufficient datum, to rest this disbelief upon. That the woman laboured under tetanus we have no reason to doubt, as the symptoms of this affection are well made out; but that the disease was “excited by the irritation of a dead foetus in utero,” is far from being proved.

* Larrey has recorded the effects of sudden changes of atmospheric temperature, as they took place in Egypt. He says, “I have observed that this accident, (tetanus,) did not commonly happen to the wounded, except in such seasons, as have rapid changes from one extreme of temperature to the other, though under similar circumstances. Such of the wounded as were exposed during the night to a cold, damp air, as the north, north west winds, were easily made to suffer from tetanus, especially during the spring; while on the contrary, this disease rarely made its appearance, when the temperature was uniform, whether this was during the winter or summer.”—*Clin. Chirur. Tom. I. p. 90.*

† But Rochoux doubts the truth of this assertion. He says, “le sexe féminin, l’enfance et la jeunesse y sont aussi plus exposés que le sexe masculin.”

For in the first place, we have never witnessed more disturbance in the uterine system from a dead, than from a living child; and secondly, the very circumstance, recorded by Dr. E. seems to prove, that the tetanic, and the uterine contractions were entirely independent of each other; which we think would not have been the case, had the irritation of the uterus from a dead fœtus, been the cause of the tetanus; for the Dr. says, “I observed, that *the parturient contractions of the womb, and the tetanic spasms, recurred in regular alternation.* Now we think this would not have been the case, had the uterine irritation caused the tetanic—they should have been synchronous, to have been cause and effect; for were this a case of tetanus arising from the cause assigned, it would come under the division of tetanus from irritation; and consequently, in this instance, the tetanic spasm would be produced at the moment the irritation in the uterus was greatest; namely, during the effort of expulsion; but this was not the case; for the tetanic and the parturient contractions “recurred in regular alternation.” It is true that Fournier relates a case somewhat analogous. He thinks, from the extreme irritation of the uterus and neighbouring viscera, during a violent and inefficacious labour, the patient may be seized by tetanus, and declares he saw a case of this kind, which was immediately relieved, by the woman being relieved by artificial means. We are however far from considering this case, as an instance of genuine tetanus; for we are in the habit of delivering a lady, who in every labour she has yet had, (five,) is seized with the most violent spasms that we have ever witnessed under such circumstances. Every muscle in her body is affected with the most painful tetanic contraction, that can well be imagined, and which will recur, whenever the contraction of the uterus takes place; and will continue until the contraction is over. This sympathetic affection, completely destroys the efficacy of the uterine pains, and makes artificial delivery always necessary. But this is not a case of genuine tetanus—for the symptoms cease the instant the contractions cease, and after the child is delivered—we believe these symptoms are produced by a peculiar distribution of the sacral nerves, on which the head of the child is made to impinge by the contractions of the uterus.

Exciting Causes.

983. The exciting causes of tetanus, are much more evident than the remote, or predisposing. This is the case, whether we consider them as acting by a general influence without evident lesion or irritation; or by producing structural derangement in a greater or less degree. Dr. Hennen says, that passion or terror

after wounds and operations, have produced the disease in some; and sympathy, though a rare cause, has given rise to it in others.

984. Under the first, we must rank the sudden suspension of the functions of the skin, as not only the most common, but also the most certain—hence the liability to tetanus of those who sleep in the open air at night, in tropical, or such warm climates, as have the heat of the day succeeded by considerable cold at night. This cause may produce not only what is termed the idiopathic form of tetanus, but is also very efficient in calling this disease into action, when it has been preceded by lesion of some kind or other. In this, all the writers on tropical diseases seem to agree—and hence the frequency of both forms of the disease in St. Domingo, Java, Cuba, Hispaniola, Jamaica, &c.

985. Fournier mentions a fatal case of tetanus in a woman, that was labouring under an acute gastritis, who while she was bathed in sweat, exposed herself in a balcony for half an hour to a current of wind from the north—so suddenly and certainly fatal is this kind of exposure in hot climates. The same authority however proves, that similar consequences have followed, under a great difference of temperature. A friend of his was seized with episthotonos, by suddenly exposing himself to a cold atmosphere in winter, while he was hot and sweating from dancing.

986. It is agreed upon all hands, that the punctured wound, more certainly produces this disease, than any other form of wound; and this is especially the case, when the injury is inflicted by a rough edge or point in certain tendinous parts of the body; as the soles of the feet, the palms of the hands, the wrists, &c. It has also followed amputations; and indeed occasionally, most every kind of operation. I once knew it brought on in a robust man, by running a small thorn under the nail of one of his fingers. It has followed the too closely paring of a corn, &c. &c.* Indeed, it would be endless, to detail all the *thousand* causes named by authors; for in this immensity, authors seem to have lost sight of the fact, that if a *predisposition* to tetanus exists, that a trifling, or even opposite agents may call the disease into action. There is an obscurity, nay an absolute darkness hanging over, the *modus operandi* of any one of the assigned causes of tetanus; for it is not by the apparent power of the agent, that we must estimate the extent of its effects; for the insignificant thorn of a blackberry bush, has, (as in the instances mentioned above,) produced death from tetanus, as certainly and as speedily as an extensive laceration—while in other cases, they have failed to produce any other than local mischief more or less

* Dr. Perry relates a case of scalding followed by tetanus.

grave; consequently, there must exist that certain condition of part of the nervous system, termed predisposition, before either exposure to cold, a puncture, a laceration, or a contusion, shall be followed by tetanus—but in what this consists, we are utterly ignorant.*

987. We say, part of the nervous system must be in a state of predisposition before tetanic symptoms will show themselves, after the application of cold to the body, or after it may have been wounded; for it is not the entire system that is affected—for the muscles, that derive their nerves immediately from the brain, or are supplied by the ganglionic system, are never primarily affected by tetanic spasms. It is however no less remarkable, than it is difficult of explanation, that the fingers preserve their flexibility to almost the last moment of life.

Pathology.

988. Considerable attention has of late been paid by pathologists, to the investigation of the post mortem appearances of such as die of tetanus—but hitherto, no absolutely certain marks have been discovered. It would seem, however, that the opinion of Galen, that the disease was caused by some derangement of the spinal marrow, has received from modern research, much support, if not positive confirmation. A long list of highly respectable names might be adduced, in support of the opinion just advanced; among those most familiar to the medical reader, who have espoused this doctrine, are Le Gallois, Abercrombie, Broussais, Thompson, O'Bierne, Reid, &c. Yet notwithstanding this formidable array of authority in favour of some lesion in the spinal cord or its coverings being the cause of tetanus, it is questioned by others, if the appearances laid down by them, be not the *effect* of tetanic exertion, rather than the *cause*. Larrey, though he describes the pathological condition of the nerves and spinal marrow in a manner very similar to what has just been stated, he does not appear to decide whether these appearances be cause or effect. He says, “dans tous les cas, l'un des effets les plus constans et les plus intenses des causes qui produisent le *tétanos*, ou le *tétanos lui-même*, est d'établir une phlegmasie plus ou moins étendue, d'abord sur la Moelle épinière et le sys-

* Larrey thinks that tetanus has often been produced by including a nerve in taking up an artery; and that however little consequence some may attach to this circumstance, he is of opinion, that it is productive of great mischief, especially in climates favourable to the production of tetanus. He thinks that mischief more certainly arises, when the ligature does not compress the nerve very powerfully; he therefore advises, in such cases as do not permit of the omission of the ligature, that it should be drawn very tightly, so as to compress the nerve very strongly.

tème nerveux de la vie de relation, et par suite sur celui des nerfs de la vie intérieure au moyen des rapports sympathiques et directs qui existent en grand nombre entre ces deux systemes.” Clinique Chirurgicale, tom. I. p. 87.* It will therefore make a cautious practitioner, slowly and cautiously to admit this newly revived pathology of tetanus—or until it shall receive more confirmation, by a more successful mode of treatment, than we possess at present: for up to this time it must be confessed, that our success in treating this formidable disease is so extremely limited, that the recoveries from it, may be rather looked upon as escapes from death, than the triumphs of art. For nothing can be more completely empirical, than the management of any given case we may select, by way of example; and even in such cases as purport to be *cures*, there is scarcely any similarity in the modes of their treatment. One is said to have been cured by opium, another by alcohol, a third by bleeding, a fourth by mercury, &c. &c. Yet unfortunately for the interest of humanity, the same remedy rarely succeeds a second time in any body’s hands, that may make the trial.

989. It however cannot be doubted, that in very many instances post mortem examinations have detected serous effusions at the base of the brain, between the tunica arachnoidea, and pia mater; the brain preternaturally vascular, and ecchymoses, in the pia mater; coagula of blood between the theca of the medulla spinalis and the vertebræ; and in two recent instances, Dr. Perry found the sheaths of the nerves of the injured part inflamed, in several portions, and free from it in others. And this account of the state of the brain and pia mater, is confirmed by the observations of Larrey, Fournier, and many others. And more lately by Combette, who found the following appearance on the dissection of a woman who died of idiopathic tetanus. “On dissection thirty hours after death, there was found great vascularity of the cerebral membranes, and somewhat more redness of the cerebral texture than natural; much serum in the canal of the spine; the spinal membranes, and particularly inside of the dura mater were of a bright-red rose colour; the surface of the cord covered with a net-work of vessels; softening of the anterior part of the cord, so as to present no resistance to the knife; and to form indeed throughout its whole length, a semi-liquid pulp of a lively rose colour, especially in the cervical and lumbar regions, where some spots of extravasation were also seen.” Amer. Jour. of Med. Sciences, for February, 1832.

* If we can believe Andral, and his familiarity with post mortem appearances entitle him to much confidence. He says, that in almost every body examined thirty-six hours after death, reddish effusions are found in the cerebral and spinal arachnoid.

There is besides much to strengthen the opinion of Galen in the experiments of Le Gallois, Wilson Philip, &c., as they could produce tetanic spasm, by irritating the spinal marrow; and from all that we have ascertained upon this subject, we are of opinion, that the pathology of tetanus will be found in some derangement of the anatomical structure of the spinal marrow. And we may mention that this opinion is much strengthened by the experiments of Magendie with injected strychnine; for no sooner was this substance received into the vein of a dog, than he became tetanic, in the most obvious sense of the term. But notwithstanding this admission, we are far from being sanguine, that a successful mode of treatment will follow even a true pathology. And so far at least, we may say with all safety, that the remedies addressed to the spine, with the pathology just named in view, have failed of success like every other method hitherto devised; but whether this be owing to the nature of the agents employed, or to the indomitable nature of the disease, remains yet to be proved; for Areteus, centuries ago, pronounced tetanus, "*malum insanabile*;" nor has modern discovery contradicted him.

990. We are told, it is true, and from authority that we cannot doubt, that success has followed bleeding,* from the general system, and locally from the spine by leeching, cupping, blistering, cauterizing, &c. While on the other hand, (and much more numerous,) that the disease has been cured by the opposite mode of treatment. Here the respective advocates of the two plans are at issue; and it would seem to prove either, that the disease may originate from opposite causes, or have opposite conditions of the system; or that nature sometimes triumphs over therapeutics. Or will some new physiological law of the system be discovered, that will reconcile the present discrepancies, and at the same time confirm the most generally received pathology of the present day!

991. Mr. Swan, in his Essay on Tetanus, locates the irritation and inflammation in the ganglia of the great sympathetic; the semilunar ganglion was highly injected with blood in most of the cases he relates; and all the other ganglia of this nerve bore more or less marks of inflammation. The dissections of Dr. Perry neither confirm nor contradict the observations of Mr. Swan. It may however be interesting to state, that in one of his cases of tetanus the disease was caused by a lacerated wound of the ring and middle fingers, together with the last phalanx of the middle finger; the bruised fingers were removed; much pain

* Larrey says, "on examining the bodies of such as have died of tetanus I have found the pharynx and œsophagus considerably contracted, and their internal coats red, inflamed, and smeared with a reddish, viscid humour." *Clinique Chirurgicale*, tom. I. p. 87.

was experienced, which was soon followed by tetanus, which proved fatal on the twelfth day from the accident. In this case, "there was no effusion on the brain or its membranes, and its substance was natural throughout. No effusion existed between the theca and the vertebræ; the theca was healthy, and betwixt it and the spinal cord was a preternatural quantity of serum. The cord itself was of a pale colour. The nerves on each side of the remaining phalanx of the ring-finger were very vascular. On tracing upwards the ulnar nerve from this point to the elbow, it was of its natural colour, but here again it became very vascular for about the extent of two inches. In the axilla it again presented a similar appearance as at the elbow, the portion of it intervening between these two points being healthy. Tracing the median nerve in the same way as the ulnar, it was found perfectly natural, from its digital branch, which supplied the radial side of the ring-finger, (and as just stated, was much inflamed,) till about the middle of the arm, when it again presented an inflamed appearance for the extent of half an inch. The portion of it intervening betwixt this part and that confined to the axilla where it again became vascular, was natural. This vascularity throughout was not confined to the sheaths of the nerves, but occupied their substance."

992. In this case, the pathological condition of the brain and nerves, was altogether different from the greater part of those reported of tetanus. In this, neither the brain, spinal marrow, nor their coverings, were in a morbid condition; while portions of the nerves implicated in the accident, were in a state of great vascularity, or were inflamed. And what is most remarkable in this case, was the vascular or inflamed condition of parts of the same nerve, while the intervening portions retained their healthy appearances. It is certainly altogether inexplicable, why an abnormal condition of portions of a nerve should exist, and intervening portions remain sound; and the more especially, as that portion immediately involved in the laceration was inflamed for two inches—the inflammation here ceased; but was again renewed, a few inches higher; it was now interrupted, but again highly vascular, a few inches beyond. This case also proves, that tetanus can arise from an inflamed portion of a nerve quite remote from its origin and without implicating either that portion of the spinal marrow from whence it proceeded, or the brain itself. Does it not prove also, that we have yet much to learn respecting the laws of the nervous system? It must not however be supposed that a pathological condition, is confined to the brain and spinal marrow; for both Larrey and Fournier, whose opportunities of examination were great, found the stomach and part of intestines, especially however the colon, to be highly injected.

Diagnosis.

993. The character of tetanus is so well pronounced, that there is little danger of its being confounded with any other affection of the nervous, or muscular systems. The tonic spasm, or continued rigidity of more or less of the voluntary muscles of the body, distinguishes tetanus from convulsion, from the latter being attended by alternate spasms, or contractions. It is to be distinguished from epilepsy, from the latter always being attended by the total abolition of sensation, and of thought. From an hysterical paroxysm, by the remote and exciting cause of the latter; by hysteria being a purely convulsive disease—that is, by its having intervals between the spasms, and by its always being attended by the loss of sensation, and of mental operations; though both of these return, when the spasm or convulsion cease; by hysteria being constantly attended by palpitation of the heart, globus hystericus, and the free discharge of limpid urine. It may be distinguished from hydrophobia, from fever generally attending this disease; increased heat of body; vomiting in the commencement; delirium; and the frequent absence of the lancinating pain from the sternum to the spine.

Prognosis.

994. This disease has been so uniformly fatal under every variety of treatment, that we are almost always safe, when we declare, the chance of recovery to be extremely small. As regards our own experience, we candidly confess, we have never seen but one instance of recovery from tetanus. We are aware, that all writers, and commentators do not declare so general a fatality—and were we to believe some, the results have in their hands, been very favourable: we pretend not to such success.*

995. It does not appear that tetanus from cold,† or any other cause, capable of producing this disease, without a lesion of some one part of the body, is as certainly fatal, as where this affection is brought on by a wound of any kind. But notwithstanding this general admission, the difference is not perhaps so decided or great, as to justify us in a departure from extreme, or well guarded caution, in pronouncing upon the issue of any given case.

996. Dr. Parry deduces much from the pulse; and affirms,

* See one of the notes to Chapter on Tetanus, in Gregory's Practice.

† Dr. Morrison does not agree, that traumatic tetanus, is more fatal than the idiopathic. In this he differs from almost every other writer; and especially, from such practical writers as Larrey, Hennen, Fournier, &c.

that if the pulse becomes very frequent on the first day of the disease; if it rise above 120 beats in a minute, the case may be looked upon as absolutely fatal. But Dr. Morrison who saw much of tetanus during a residence of eight years in Demerara, declares he never saw the pulse so much accelerated, as mentioned by Dr. Parry; and we would declare the same thing, were our comparatively limited experience worth the naming. It is true, we have occasionally known the pulse to be much accelerated, but we were in the habit of regarding this increase in frequency, as the effect of great muscular exertion, or contraction; for it has always appeared to us, that as the violence of spasm would abate, the frequency of the pulse would diminish. Dr. Morrison says, he never knew the pulse to exceed 98, whether the disease proved fatal, or terminated favourably—we have certainly seen it otherways.

997. Dr. Morrison sums up his experience with the following prognostications. “When the disease comes on gradually; when for the first two or three days, the muscles of the jaws are solely affected, and that perhaps, not in any alarming degree; when the abdomen is not preternaturally hard, nor the bowels obstinately costive; when the skin is moist and moderately warm, and above all when the patient enjoys sleep, we may entertain strong hopes of recovery. An increased flow of saliva, whether the patient has or has not used mercury, is always to be regarded as favourable; the less the general air of the countenance is changed the better. On the other hand, when the attack is sudden and violent; when the muscles of the neck, back, and abdomen, are rigidly contracted; when the patient complains of a shooting pain from the sternum towards the spine; when the belly feels hard like a board, and the least pressure thereon produces spasmodic twitchings, or contractions of the muscles of the neck, jaws, &c. or when the same effect is brought about by the presentation of any substance, (solid or fluid,*) near the mouth, we have much reason to fear a fatal termination. Spasmodic startings of the muscles set in sometimes early in the disease, and recurring every eight or ten minutes, are to be regarded as very unfavourable.” p. 29. Dr. M. does not think that traumatic tetanus is so fatal in tropical climates as authors generally represent; and believes, from a case of this kind yielding to the efforts of nature, that spontaneous cases of cure do occasionally occur in these climates—we however have never heard of such an instance in this country. Trismus, generally speaking, is the

* Larrey says, when tetanus presents itself in its most exalted form, some remarkable symptoms present themselves. Sometimes the patient shows the greatest possible aversion to liquids; and should he be forced to swallow any, it will cause the most violent convulsions. Clinique Chirurgicale, Tom. I. p. 86.

least fatal form of tetanus. But when the disease becomes protracted, the pulse keeping regular, and the skin maintains its warmth, it is favourable; especially, if the patient can receive drinks, and the bowels become free. A free perspiration succeeding to a hot skin; a bleeding from the nose, or a return of a hæmorrhoidal flux, are also good signs.

Treatment.

998. We believe no one has attempted any difference in treatment for the idiopathic or the traumatic, nor for the different species into which nosological writers have divided tetanus.

999. The treatment consists in the use of topical applications, and general or constitutional remedies. The objects to be fulfilled by the first, are inflammation and suppuration—hence the employment of the *sp. tereb.* lunar caustic; caustic lye, actual cautery, cantharides, &c. emollient poultices, to aid or hasten suppuration; warm olive oil, &c. The division of half divided nerves, or tendons, has been recommended; but who would promise himself, that he could ascertain in any given wound, that a portion of a nerve was left undivided, or that he could succeed in completing the division, and at the same time not place some other nerve with which his knife may come in contact, in the same predicament? We believe this attempt can rarely be availing in any instance; and that it may be in others highly injurious. But not exactly so with regard to a partially divided tendon; as this may sometimes be evident to the sight, and its division may be important. Larrey advises the amputation of an extremity, not merely because there is much loss of substance, or the bones comminuted, or other causes that may render this operation necessary, but, as a preventive to many serious evils, but especially, tetanus. He also recommends the division of a ligature, when it includes a nerve with the artery. He appears to have performed this delicate operation several times, with manifest advantage—but this is the business of the surgeon.

1000. As regards our own experience, we have never seen either stimulating applications, or the dilation of the wound, of the slightest use. In a case that fell under the notice of Dr. Physick and ourselves, we succeeded, by dilating the wound and stimulating it with *sp. tereb.* to bring on suppuration; but the patient died on the sixth day after the symptoms first showed themselves. Yet we will not positively assent this plan cannot be useful. Nor does it appear, from the experience of Larrey or Hennen, that the removal of the part in which the lesion exists, is attended with any remarkable benefit, though occasionally useful.

1001. Dr. Potter appears to us, to be much at variance with himself, in his note affixed to the text of Dr. Gregory on the subject of tetanus. He says, "the less the inflammation in the wounded part, the greater is the danger of tetanus." But he immediately adds, "the practice of endeavouring to excite high inflammation in the part originally hurt, has been very generally adopted, and we believe without benefit, and probably it has operated injuriously. Instead of mitigating the ferocity of spasmodic contraction, it frequently foment it." Much dependence however is placed upon a healthy suppuration in the wounded part; for say they, when this happens, the disease usually relaxes, and the amendment is attributed to this cause. We are however very doubtful of the agency of a suppurating surface in taming the ferocity of tetanic spasms. We look upon this, as mere coincidence; or only as marking a return of the healthy functions of the body; and that the appearance of healthy pus, is the *consequence* of the abatement of the morbid, or tetanic action, and not the *cause* of it—and that "*post hoc, ergo, propter hoc,*" is too frequently made the basis of medical reasoning, or of therapeutical suggestions.

1002. By way of preventive Dr. Clark recommends a slight mercurial ptyalism to be brought on after wounds in hot climates.

1003. The general remedies mainly relied upon, are opium, mercury, cold and warm bath, bark and wine, cathartics, blisters, spirit of turpentine, caustics, musk, asafoetida, &c. We shall therefore consider each of these therapeutical agents separately.

1004. *Opium*.—There is no remedy in tetanus, that has so much testimony in its favour, as opium; yet, it is but too well ascertained, that it cannot be always relied upon. Popular prejudice in its favour is so great, that a practitioner, would scarcely be considered free from blame, that did not employ it, notwithstanding its frequent failure. It would be easy to bring authorities of high standing, for its almost unlimited employment, and apparently for its efficacy in the disease in question; while on the other hand, we could with equal facility adduce evidence equally entitled to confidence, that utterly condemn it as useless, if not pernicious. As regards our own experience, we are obliged to confess we have never seen it of the slightest service, either as a palliative or as a remedy.

1005. Thus we find Cullen, and almost all his followers, place their chief reliance on opium, and recommend it to be given with unsparing hand. Dr. Barr* gave one drachm of solid opium on the third day of the disease, and after the loss of eighty-two ounces of blood. Dr. Morrison employed this drug in Demarara

* Edinburgh Med. and Surg. Jour. No. XVII.

with a liberal hand, and apparently with advantage. While Broussais, Larrey, Fournier, Hennen, &c. are averse from its employment. The young practitioner will thus find nothing but conflicting testimony on the subject of opium; nor can we relieve it, by either our own experience, or by any new pathological or therapeutical views. We can only say, if this article be employed, the stronger evidence is in favour of large and sufficiently often repeated doses, and this in the form of laudanum; as there is too much reason to believe, that many have fallen victims to the remedy, rather than the disease, when given in the form of opium: for its insolubility in the stomach has permitted a deadly quantity to be accumulated in the stomach before its narcotic effects were made manifest. We believe also, it will be found that per anum will be the most certain way of its getting possession of the system. One hundred drops of laudanum has generally been considered a proper dose by the mouth, and if it be applied to the rectum, this quantity should be trebled. Might not a suppository of half a drachm of opium be an eligible mode of administering it?

1006. *Mercury*.—As regards this remedy, the same conflicting testimony meets us at the very threshold. Larrey tells us it invariably did harm in Egypt; while the Monro's declare they have succeeded with it most happily. Dr. Rush records a case that was cured by mercury, aided by bark and wine. Dr. Morrison informs us, that he met "with many examples of the beneficial effects of mercury in this disease, and as it does not interfere with any other remedies, the free administration of it, he says, ought never to be omitted." *Treatise on Tetanus*. Dr. Johnson says, spontaneous salivation has often been observed in tetanic patients whose cases terminated favourably, hence, probably, the first idea of using mercury.*

1007. That mercury may be useful, it should be early and liberally employed—and this both by inunction, and in the form of calomel by the mouth; for unless ptyalism be produced, we believe it will never be efficient; and in most instances of traumatic tetanus especially, we fear that the system will be too much under the influence of tetanic impression, or that the patient will die before the mercurial action will be set up. We can say nothing of the use of mercury in this disease from our own experience, that will instruct in its application, or would deter from its employment.

1008. Dr. Morrison recommends, that four grains of calomel should be given two or three times a day, also, three or four drachms of the ointment well rubbed on the neck and spine,

* Influence of Tropical Climates, &c.

night and morning, besides a much larger quantity to be rubbed upon other portions of the body. We are disposed however to fear, that mercury when it salivates, rather proves the mildness of the character of the disease, than its controul over it.*

1009. *Warm and cold bath.*—Fournier thinks that advantage might be derived from the alternate use of the warm and cold bath. He says the patient should be kept in the warm bath for about a quarter of an hour, and then a certain quantity of very cold water should be suddenly poured upon the head. He thinks this plan would be highly useful, where the muscles of the head and neck are very rigid; the pulse full; and when the brain betrays marks of sanguine congestion—however confesses he has never tried this plan himself, though it has been used with success by others.

1010. Dr. Morrison also thinks favourably of this remedy—he says it has afforded much present relief, in a number of instances in which it was employed when the spasmodic twitchings were frequent and troublesome.

1011. This treatment may be had recourse to in hospital practice; but it could be very rarely used with advantage in private families. Indeed Dr. M. himself seems to have but little reliance upon it—and intimates that the exertion the patient is obliged to make in employing this remedy, counterbalances the good effects expected from it.

1012. *Bark and wine.*—We believe these remedies are very rarely relied upon alone—they form a part of the routine of medical discipline, to which a tetanic patient is almost unavoidably exposed: at most they can be considered but as auxiliaries to other more efficient means.

1013. *Purging.*—We believe that purging has never been *exclusively* relied upon in tetanus; though all confess its importance as an auxiliary. We have already remarked upon the state of constipation to which the bowels are liable, either as one of the characters of the disease, or as a state brought on by the re-

* The experiments of Mr. Swan with a view to illustrate the pathology of tetanus, have elicited a curious fact as respects the influence of mercury upon the ganglia. "In experiments upon animals, I have found decided marks of inflammation of the ganglia of the grand sympathetic nerves produced by mercury. As there is a similar appearance of the ganglia in tetanus, I cannot help supposing, that the use of mercury is very doubtful, if not altogether hazardous; and so many cases on record, in which it has failed to restrain the disorder, show that it cannot by any means be depended on. I am willing to believe that practitioners may have thought it beneficial, because a patient who has used it has recovered. I have seen it administered in chronic tetanus, and the patient has got well; but the recovery was very slow; and whether it had any influence over the disease, is most difficult to determine." *Essay on Tetanus*, founded on cases and experiments.

medy so universally employed in this disease, namely, opium.* And all agree that it is a condition, be it accidental, or characteristic, that is very difficult to overcome. Sir James M'Grigor informs us, that the operation of calomel has always been useful, especially in the mild forms of tetanus. But the more active purgatives seem to claim a preference—and perhaps none is more certain in its operation, or more easy of exhibition, than the croton oil, mixed with a mucilage of gum Arabic, and some one of the essential oils.† The infusion of tobacco has also been recommended in enemata—we have seen a fair trial made of this remedy; but without the least advantage to the disease, though not without great annoyance to the patient. As a mere purgative injection, when other remedies have failed to procure a discharge from the bowels, it may be useful. Dr. Hennen's testimony, is very similar to the one we have just expressed. It must however always be kept in mind, that the doses of every medicine that we may employ in tetanus, should be at least doubled.

1014. *Spirit of turpentine*.—There is as much, if not more substantial evidence in favour of this drug, as any that has generally been employed; and to corroborate this, we may with much propriety refer to the case related by Dr. Mott, of New York.‡ This was a case of traumatic tetanus, and had resisted all the usual means. A tea-spoonful of the turpentine was given every fifteen minutes for the period of two hours—at the end of this time, the spasms ceased. The turpentine was now given at more distant periods, until one hundred and twenty-three doses were given in thirty-six hours. This substance is one of great power, and well deserves further trials; and when it is combined in equal quantities with castor oil, it is one of the most certain and active of the purgatives.

* Dr. Hennen says he has never witnessed any one symptom detailed by authors to be constantly present in tetanus, save *costiveness*—it would seem from this, that this state of the bowels is one of the absolute characters of the disease, and the only one, constantly present.

† We have never employed the croton oil in tetanus, though we have frequently used it in other obstinate cases of constipation. Our usual formula for an adult is as follows:—

R.	Ol. croton tig.	-	-	-	-	gut. viij.	vel. x.
	Mucil. g. Arab.	-	-	-	-	3ij.	
	Ol. anise vel. carui	-	-	-	-	gut. iv.	
	Sacch. alb.	-	-	-	-	3ij.	M.

Of this a tea-spoonful is given every hour until it operates freely. In tetanus, however, the dose may be profitably increased perhaps to two drops at a dose.

‡ We might mention other cases in favour of the turpentine; for instance, those of Mr. Hutchinson, Mr. Torrs, &c. but Mr. H's case appears rather a doubtful one, as it had been preceded by epilepsy, though that of Mr. Torrs is free from this objection.

1015. *Caustics*.—From the pathology now generally accepted, caustic applications have been used to the spine. Dr. Rush saw it succeed in two instances in combination with the cold bath in the horse. Dr. Hartshorne of our city, we believe was the first who used it on the human subject in this country; and his example was successfully followed by a number of practitioners. We have used it once, but in that instance it failed to even mitigate suffering, or to prolong existence. The mode of using it, is by dipping a piece of sponge tied upon a stick or fork, in a strong solution of caustic alkali, and then rubbed upon the spine until it excite inflammation.

1016. *Musk*.—Of this remedy, we can say nothing from our own experience; its extreme high price forbids its employment in private practice; and its doubtful efficacy, scarcely would lead to its use, did we waive the objection of price. Yet Fournier speaks of its virtues in almost unmeasured terms. He says, “musk, of all the antispasmodics appears to me to possess the greatest activity and power. I have employed it with great success in divers cases of tetanus. I gave from one to two drachms daily, in doses of from ten to fifteen grains.”

1017. *Asafetida*.—This substance is certainly too feeble to be relied upon as a principal remedy—if it be useful, it must be after the more violent spasms have yielded to other remedies—this appears to have been its agency, in a case related by Dr. F.

1018. We have thus passed in review the principal remedies recommended for the relief of this truly cruel and fatal disease, without our reliance being increased in any one of the given means. For if we are honest in making our summary, we are obliged to confess, that there is such equality of testimony in favour of each individual plan, as to at least perplex our judgment, if not to prevent a selection. Let us hear what the honest and experienced Hennen says upon this subject.

1019. “Happy should I be could I afford any thing satisfactory on this dreadful complaint; but in truth, my observations have tended more to show me what I could not trust to, than what I could place the smallest reliance on, when the disease was once fully formed.” *Military Surgery*, p. 148. And we are of opinion, that this will be the confession of every honest practitioner. As regards our own experience, we freely confess that we never succeeded but once in curing tetanus; and this was effected by keeping up a slight intoxication by means of hot rum punch for several days consecutively—but this remedy failed utterly in the very next case, in which it was employed. Dr. Hennen in the next page, declares he had never been so fortunate as to cure a case of acute sympathetic tetanus—we believe, that

if every practitioner had been equally candid, we should hear of fewer cures.*

1020. It may be proper and useful to remark, that the pathology now almost universally believed in, namely, inflammation, in the cerebral meninges, and especially in the spinal marrow or its theca, is supposed by some to be contradicted or disproved, by such cases as are said to have been cured by powerful stimuli. Upon this objection to the best established pathology, Dr. Johnson remarks, and we think with much propriety, "that the local abstraction of blood by leeches and cupping from the neighbourhood of the spine, with subsequent blisters there, are not inconsistent with the plan of treatment recommended by Dr. Morrison. For it must be remembered, that such is the unequal distribution, both of blood and excitability in the system under this disease, that one part is completely torpid, while another is on the point of extravasation from turgescency or inflammation. It is evident from this view of the affair, that we must stimulate the torpid organs at the very moment we are employing sedatives and counter-irritants, or abstracting blood from the congested parts. Hence, too, the value of purgatives and mercury. The former bring back the excitement to the abdominal viscera, and powerfully determine from the spine; the latter sets all the secretory and excretory apparatus to work, while it equalizes the circulation in every part of the system." Influence of tropical diseases on European constitutions, p. 513.

SECT. VII.—HYDROPHOBIA.

1021. Dr. Cullen dismisses the subject of hydrophobia in two pages; he says, "with respect to its pathology, I find I can say nothing satisfying to myself, or that I can expect to prove so to others." He places it immediately after hysteria, to which it has no natural analogy. Its cause, its progress, its symptoms, its termination, and proposed methods of cure, bear not the slightest resemblance to hysteria. He ranks it among the spasmodic affections; Dr. Rush among fevers, and Boerhaave pronounced it "summe inflammatorious;" while most of the modern practical writers make it follow *tetanus*, to which it has some affinity, if symptoms will justify application. Yet its general character and causes differ *toto cælo* from tetanus—for tetanus is not a disease of specific contagion; nor can it be propagated in another subject by any means of art. Hydrophobia in the human subject, is always the result of wounds inflicted by a rabid

* Dr. O'Beirne declares of two hundred cases of traumatic tetanus that occurred in the Peninsular army, not one recovered.—Dub. Hosp. Rep. Vol. III.

dog, or by an animal of this genus—as the wolf, the fox, the jackall, and the hyena.

1022. It is however taught and believed by some, that this disease can be propagated by any animal that is labouring under the hydrophobic action; this however should not be too easily admitted, nor be unadvisedly rejected. We have seen but few cases of this awful disease—not more perhaps than a dozen; in each of these instances, it was by the bite of a dog. In 1792 we had a large mastiff to go mad—he bit a very near friend on the bare arm, and left the trace of one of his teeth for at least three inches, from which some blood flowed the whole length of the wound. The dog ran from the house, and in the course of his wanderings he bit fourteen animals, a number of which, if not all, went mad; but in no one instance did we hear of its being by any accident propagated further—the disease stopped with these victims, for such they proved. It is true this does not amount to proof that either of these animals could propagate the disease; yet we believe that much mischief would have ensued, had these bites been inflicted upon dogs.*

1023. But what shall we say to the testimony of Dr. Potter,† who gravely tells us, that it is within his own knowledge, “*that a cow, a sheep, a hog, a goose*” has communicated the disease. In these cases, we are of opinion, there is much room to doubt, that the affections which followed the bite of these animals were genuine cases of rabies. If the dread of water be taken as the pathognomonic symptom of this disease, much confusion will be created; for Dr. Good informs us, that he had a young lady as a patient who had the dread of water to a great degree, and the same has been witnessed by others. It is true that Dr. Potter may find an apparent support in the cases, (every way similar,) quoted by Dr. Good from Le Cat and others; but it is well known how given to the marvellous were the writers of the last century, and how little reliance can be placed upon the accounts where there feelings could be exercised; though Dr. G. to obviate this prominent objection says, “marvellous as these facts appear, it is more consistent with reason to accredit them than to impugn the host of authorities to whose testimony they appeal.” p. 231, Vol. III. Yet after this apology for the wonderful, Dr. G. forgets it immediately, and says, “now the only animals which have hitherto been ascertained to have a power of generating it are several species of the genus *canis*, as the dog,

* In the case just alluded to, the lady escaped by the exertions we made to prevent the absorption of the virus, or its tarrying on the wounded places. The wounds were immediately well and frequently washed with a strong solution of newly made soft-soap and warm water during several hours—no other precaution was used.

† Note to Gregory’s Practice, p. 149.

fox and wolf, and species of the genus *felis*, which is the domestic cat; it is probable however, there are others belonging to different classes endowed with a like power; and some writers have attempted to bring instances from the horse, mule, ass, ox, and hog, yet they are not instances to be depended upon."

1024. Dr. Gregory says,* "the disease *almost* always commences among animals of the canine race." We wish he had gone a little further, and have said "always"—for we believe this disease in its origin to be peculiar to the dog kind, and must *originate* therefore with them; for we do not know an unquestionable instance of its *originating* in any other animal. Dr. Gregory further says, "it is even questionable how far it ever originates even in the cat kind.† To them however it is easily *propagated*, and they possess, equally with dogs, the power of transmitting it to man, and to every species of quadruped. It is a matter of doubt whether *birds* are susceptible of the disease. Herbivorous animals appear incapable of communicating it, and this is even still better ascertained with regard to man. Innumerable attempts have been made to propagate the disease by inoculating animals with the saliva of persons labouring under hydrophobia, but they have all failed."

1025. This assertion however appears to be too broad, if there be no mistake in the experiments of Magendie and Breschet, which it would seem there cannot well be, as the relation of the result bears every mark of authenticity. They collected a quantity of the saliva of a *man* labouring under hydrophobia, which was inserted beneath the skin of two dogs apparently in perfect health. Thirty-eight days after this inoculation, one of the dogs became rabid, and bit two other dogs, one of which died a month after of the same disease.

1026. This disease is always communicated to man by inoculation by wounds made by the teeth or a tooth of the animal imbued with the saliva;‡ it is never spread by the atmosphere in

* Practice of Physic, Vol. II. p. 148.

† Dr. Good appears to believe, that the disease becomes milder by passing through the constitution of the domestic cat, after the same manner as the small-pox virus does, after having passed through the system of one who had been protected by the vaccine disease. Study of Med. Vol. III. p. 235.

‡ The instance mentioned by Dr. Rush as an exception to this rule is too vague to be set in opposition to the experience that declares, "a wound is absolutely required." Dr. Rush did not see the case he makes mention of—he only says, "*I have heard* of a case in Lancaster county, Pennsylvania, in which a severe contusion, by the teeth of the rabid animal, without the effusion of a drop of red blood, excited the disease." Works, Vol. II. p. 302. Now we do not believe that the "effusion of a drop of red blood" is ever necessary to the propagation of this disease; a solution of continuity in the epidermis is all that is required. For in the inoculation for the small-pox, or for the vaccine disease, it is more sure to succeed when there is not "the effusion of a drop of red blood," than when this happens.

which the subject breathes, most fortunately for the human sufferer, as it does not deprive him of the affectionate attentions of his friends, while labouring under this awful affliction. And still more fortunately perhaps is the circumstance, that very many escape the disease who may have been bitten—this however certainly arises from the human subject being bitten, for the most part, in parts covered by clothing, rather than from the want of power in the virus; for so obviously is this the case, that few animals escape this malady that have been bitten; while in the human subject, comparatively few are attacked with hydrophobia, unless the bite be upon an exposed or naked part. Mr. Hunter relates a remarkable instance of an immunity of this kind; for of twenty persons bitten by the same rabid animal, only one suffered.

1027. It is this chance of escape that has given reputation to all the remedies of the prophylactic kind that has hitherto been imposed upon the public; for from long observation and inquiry, we are satisfied that no such power exists in any nostrum hitherto proposed. Yet this delusion may be useful occasionally, by creating a confidence in the patient that he will escape, and thus abate the severity of mental anguish that is so sure to follow this accident; therefore these remedies may be safely resorted to, provided they do not prevent the use of such mechanical means as have given security against this awful affliction.

1028. We are aware that Dr. James* has attempted to prove that mercury had a decided prophylactic power—his experiments were conducted on a pack of hounds—he gave them turpeth mineral in pills; and he declares, that all the dogs that were salivated, in whatever stage of the disease it might happen, recovered, and the rest all died. But unfortunately for mankind, his experiments upon the human subject were not equally successful; they amount but to three, and each of these took the mercury immediately after the bite as a preventive; we must not therefore positively depend upon the agency of the mercury in preventing hydrophobia, because neither of these three went mad; for as just stated on the authority of Mr. Hunter, that of twenty bitten, one only suffered. A variety of other remedies have been proposed; have had their trial, and have so utterly failed, that the slightest dependence cannot be placed upon them—such has been the fate of opium, musk, arsenic, Prussic acid, plantain, chlorine, &c. &c. Dr. Good seems however to rely with considerable confidence in a certain preventive to dogs; this preventive consists in that morbid condition of the animal, commonly called the *dog distemper*. The facts he has collected

* Philos. Trans. Vol. XXXIX. for years 1735—6.

upon this subject, are both too curious and important, not to be mentioned.

1029. "I ought not, however, to conclude without noticing one very extraordinary fact in the economy of morbid poisons, and especially of that before us, which I have had confirmed by the testimony of several veterinary practitioners entitled to credit. It is, that no dog who has ever had the distemper, as it is called, which is the canine catarrh or influenza, has been known to become rabid spontaneously, though he is capable of receiving the disease by the bite of another dog. If this be true, for which, however, I cannot fully vouch, we have certainly another instance of morbid poisons mortally conflicting with each other; and it might be worth trying how far inoculation with the matter of canine catarrh might succeed in protecting a human subject after the infliction of a rabid bite; though in the dog, perhaps, from a stronger predisposition to rabies, it seems to be impotent. In South America, rabies, as already observed, is altogether unknown, and I have hence been anxious to learn whether the distemper be unknown there also; and in answer to this inquiry, it has been told me, by several intelligent residents in that quarter, that this last disorder is so common and so fatal, that two-thirds of the dogs littered there perish of it, while pups; a remark which still further confirms the home-report concerning its influence on rabies, and sufficiently explains the non-existence of the latter on the shores of Plata."—*Good's Study of Medicine*, Vol. III. p. 260.

1030. If this account be true, it offers a very fair means to diminish at least the number of mad dogs, and merits a candid and impartial trial. But unfortunately, there is so much fable connected with the history and cure of this terrible disease, that the practitioner never knows on what remedies to rely; and his efforts are reduced to this unfortunate predicament, (as regards either the patient or his own reputation,) that it is almost a matter of indifference, which plan of treatment he adopts—for the patient will almost certainly die, and the practitioner will incur censure, because some other mode had not been adopted—for every body undertakes to judge, or knows of some *infallible cure*, for hydrophobia.

1031. Dr. Good informs us, that Sir Walter Farquhar has lately received a communication from Russia, in which the madwort plantain, (*alysma plantago*,) is said to have cured the disease in every instance for the last twenty-five years. If we are rightly informed, this plant has been faithfully tried in the south, but without the slightest benefit. So with the skull-cap, so much vaunted by Mr. Coleman—it utterly failed in every trial, made in this city. In a word, we have no preference for any plan

hitherto proposed ; and we but too sorrowfully believe, as far as regards the real interest of the patient, that one is about as good as another ; for each purport *to have been successful* in certain hands ; but the efficacy of all, is as certainly destroyed, by transmission. The only reliance then, is to be placed, upon the immediate, and entire removal of the virus—either by surgical operations, or by long-continued ablutions.

1032. This disease makes its appearance at very different periods after the insertion of the poison—sometimes, in a few days, and other, not for months agreeably to some authorities. Upon this head, as well as upon several others connected with this disease, unfortunately much uncertainty prevails. We say unfortunately, for so it is, as when a long period is said to be required to bring the virus into action, the mental sufferings are no less constant, than severe. We have no faith whatever in such cases as had but a few hours to intervene between the bite, and the appearance of the disease, or in such as required years for this accomplishment. The time, from all we can collect, will range between the fifteenth and the seventieth day. Authority is too vague upon this head, to allow us to believe that the disease will appear earlier than the time just specified ; or for it to procrastinate beyond the limit just assigned—especially, as we know this disease to be not very unfrequently simulated. This particularly occurs in habits of nervous temperament, and in which the *dread of water* has been known to take place ; but which symptom has too exclusively been considered the pathognomonic sign of this disease. Nor has this particular symptom always been confined to the nervous subject ; for it has been observed in diseases of certain organs, and of a true inflammatory kind—as in phrenitis, carditis, hysteritis, &c.

1033. The cause of the retardation of the specific effects of the canine virus, or its want of a fixed period like some other morbid poisons, as small-pox, measles, vaccine, or cow-pox, &c. has been vaguely, and unsatisfactorily accounted for. One has attempted its explanation, by supposing a necessity of some chemical change in the part itself, or the system at large, before the disease could appear. Another, by calling in the aid of what is called “nervous sympathy ;” while a third supposes it may be the habit of the poison to lay dormant, until certain local susceptibilities take place, to rouse it into action. It will however be readily admitted, that these several conjectures are purely hypothetical, or at best the substitution of one inexplicable phenomenon to account for another.

1034. The most ingenious and best sustained hypothesis upon this subject that we have met with, is that of Mr. Salt.* Mr.

* Essay on the mode by which constitutional disease is produced from the inoculation of morbid poisons.

Salt does not believe that *direct* constitutional effects will be produced by the introduction of a morbid poison from one animal into the absorbent system of another; for he declares it to be either innocent if absorbed in this state, or becomes so while passing through the absorbents. He supposes that the specific effects upon the constitution of the inoculated animal are produced by a fluid secreted by its own arteries, very similar to the poison applied to them; the poison applied, imparting to the arteries of the part an action capable of secreting such a fluid—and consequently, agreeably to this, the virus does not absolutely lie dormant, but gives an impulse of greater or less force to the arteries of the part wounded, which at length eventuates in inflammation and secretion. He further supposes, that in cases where no effect is produced by the morbid poison, it has been taken up by the absorbents, and thus rendered inert. He illustrates this point with considerable ingenuity and plausibility. He says, that it sometimes happens, that of four persons carefully inoculated from the same pustule, two may take the disease, and two may not—in the latter case, he says, he cannot suppose the absorbents have been inactive, but that the poison has become innocent by its absorption.

1035. He declares, that the fact of the removal of the part wounded some time after its infliction, proves the justness of his views; for by this means you remove the inflamed part which is to become capable of multiplying the virus. And further, that immediately before the constitutional symptoms appear, that pain and other local irritations are felt in the part originally wounded, together with symptoms of pyrexia. He gives a number of well attested instances of the success of the excision of the wounded part, even several days after the bite, and where there could be no doubt of the rabid state of the animal.

Symptoms.

1036. This disease, like most others, has its precursors—these are both general and local. The first consists of languor, a sense of weakness, and indisposition to motion, or to mental exertion. Chilliness, nausea, vomiting, loss of appetite, hurried respiration, &c.; in a word, all the signs that constitute pyrexia. Sleep is interrupted and precarious, and is not unfrequently accompanied by distressing or frightful dreams; tremors, startings, and darting pains, sometimes from the wounded part to the head or the stomach. The temper becomes irritable, and illy brooks contradiction; while confidence of every kind is diminished, and the patient becomes the prey of gloomy anticipations. The venereal appetite in the male is sometimes highly excited; so much so in one instance that we witnessed, that an almost constant priapism

was present. These anticipating symptoms are generally of some days continuance. The local symptoms are rarely severe, or for the most part, not more severe than a wound of the same extent inflicted by the same weapon, by a sound animal. The wound generally heals without difficulty, and this for the most part lulls the patient into a false security, as this circumstance does not interrupt the onset of the constitutional symptoms—on the contrary indeed, where suppuration has taken place in the part, the patient has been known to escape this direful disease.

1037. The healing of the wound however is the more common event; and the part will keep free from suffering for an uncertain period. But just before the constitutional symptoms show themselves, the wounded part is generally, or perhaps always, found to become tender, to be more or less inflamed, the progress of which is marked by the course of the absorbents, and it is at this time that the system may be found to labour under febrile phenomena. It however rarely happens that the wounded parts ulcerates, or that a fluid is formed; yet such instances have occurred.

1038. Mr. Salt says upon the occurrence of these changes, "it appears to me that the pain felt distinctly in the part at this period, accompanied by shivering, and sometimes by diseased change of structure, are sufficient evidence that the poison finds its way into the constitution, under the controul of the general law, which I have presumed regulates the introduction of other morbid poisons. It is not necessary that a very distinct and copious secretion should take place; for certainly the absorption of a very minute portion of secreted fluid is sufficient to occasion all the constitutional effects as is demonstrated in the production of syphilis; nor is it essential that the secreted fluid should possess a puriform appearance, when we know that the secretion in the pustule of the vaccine virus, in its most active state, differs little in appearance from a drop of clear water." p. 52.

1039. The premonitory symptoms usually precede the confirmed constitutional symptoms about eight or ten days. And one of the most constant of these is the aversion from water, or from any surface that can give the idea of this fluid—and hence the name of the disease. Instances nevertheless have occurred, especially in dogs, in which this symptom was either not constantly present, or not strongly marked, or altogether wanting. We once witnessed a case with the late Dr. Bensel of Germantown, in which the patient swallowed at one draft, nearly a tumblerful of water a few hours before he died. Yet at other times the utmost distress, nay agony, is produced by the presence of water, or even by the presence of any thing with which the idea of water can be associated. It has however appeared to us,

that this *dread* is owing rather to the *extreme* desire for this fluid throwing the whole apparatus connected with swallowing into violent and highly painful spasm, than to an extreme aversion to the water itself—for the patient who swallowed the tumblerful of water a short time before his death, informed us that his thirst was extreme, but dared not always attempt indulging it, from the pain excited in his throat at certain times—but in this instance even, the effort to swallow was an extreme effort. We have already remarked that symptom was not pathognomonic, as it has appeared in other diseases.

1040. There is a profuse secretion of saliva, which the patient, almost as constantly as it is formed, ejects from his mouth with great force and uncertain direction—we never saw one use a vessel to spit in, or employ a cloth for this purpose. During the progress of the disease, the violence of symptoms occasionally suffer abatement—but this is transitory, and even unsatisfactory, as the succeeding paroxysm seems to be the more severe, by even this temporary truce. There is considerable difference in the character of the disease as far as we have seen—that is, some are much more vehement and ferocious than others during the paroxysms; some exhibiting all the violence of the maniac; others exhibit a kind of mild delirium; while others are calm and resigned.

1041. The paroxysms differ not only in intensity, but in duration—some will continue half an hour, while others will occupy but a few minutes. Nor does the patient become maniacal, strictly speaking, as we have seen two or three instances in which they preserved their senses as in tetanus, to the last moment. This was the case in Dr. Bensel's patient mentioned above; also in Mr. Thompson's boy, that was attended by Drs. Rush, Physiek and myself. The patient is averse to lying down in most cases—they greatly prefer sitting up; and still more, if not too much weakened, walking about.

1042. The pulse is not much disturbed in this disease, though it pretty constantly betrays febrile irritation, especially towards the close of the disease, when it becomes extremely frequent. The bowels are generally constipated; the urine scarce; the skin dry and husky, or bedewed with a cold exudation; the tongue dry, sometimes chapped and hard. Light is generally offensive to the eyes, and the hearing is sometimes extremely acute. The duration of the disease is rarely beyond the sixth day.

Pathology.

1043. It seems that post mortem examinations have thrown but little light upon the changes produced in any one part of the body

by this disease. Indeed the appearances recorded by authors, are extremely different from each other, and as altogether unsatisfactory. The brain seems however to suffer principally; vascular congestions are pretty constantly observed both in its substance and in its meninges; effusions in its ventricles, and the cervical ganglia have been found engorged and inflamed. The mouth, fauces, glottis, and trachea are inflamed to some extent for the most part, but not constantly. The lungs are usually filled with blood, and its mucous membrane inflamed. Sometimes traces of inflammation are found in the stomach and intestines. And it is asserted by some, that the nerves leading from the wounded part have been found inflamed to a considerable extent. Mr. Salt is of opinion however, that the changes produced in the bitten part have been too much neglected by pathologists; as it would seem from all testimony, that previously to the appearance of the constitutional symptoms, uneasiness is always felt in the part that originally received the virus. It is on this account that this author draws the conclusion, that the constitutional symptoms are not the result of the absorption of the virus; as these do not take place but after a considerable lapse of time, from the infliction of the wound and the deposition of the poison, "a delay which would probably not occur if it were subjected to the operation of direct absorption only." p. 57.

1044. This view of the subject merits more attention perhaps than has hitherto been bestowed upon it; especially as the local symptoms invariably precede the constitutional disturbances.

Treatment.

1045. Of the treatment of hydrophobia, what shall we say that will excite to exertion or that will merit confidence? For if we are honest, we must confess, that neither ingenuity nor industry, has so far, ever been rewarded by a cure. Shall we incur censure by this excluding opinion, and be told, that the records of medicine furnish many examples of cures of hydrophobia; and that we are opposing single-handed, the testimony of a host of respectable authority? But let us not be supposed, when we declare it as our decided opinion, that a genuine case of hydrophobia has never been *cured*, that we are doubting the truth of these authorities. For we freely admit that some have recovered from this terrible disease; but, that the recoveries were owing to any plan of treatment, we utterly disbelieve—for we know that nature now and then triumphs over art in some of the most deplorable instances of disease; and these victories of the recuperative powers of the system are benevolently

set down to the credit of the medical art.) We therefore unhesitatingly declare, that up to this time no one plan of the many that have been proposed merits the slightest preference over any other; and though it is but natural and human to hope, that this terrible malady will sooner or later be stricken from the oprobria medicorum, it is nevertheless but honest to confess that it is yet to be numbered among them.

1046. Upon a review of what has been said of the powers of certain articles of the materia medica in this disease, we should be more disposed to place reliance upon mercury than upon any other remedy; but for even this to be *possibly* useful, it must be employed in very liberal doses, both internally and externally; and this with the most unremitting industry. And until further testimony in favour of the efficacy or utility of cold and warm bathing, drowning, the belladonna, the plantain, vinegar, the skull-cap, &c. &c. can be produced, we would consign them "to the tomb of all the capulets."

1047. But in this proscription, we do not include the local treatment of the bitten part—for upon this depends the only chance of escape from this frightful malady. We are sorry to find, however, that precautionary measures have been, and continue to be, so exclusively limited to internal remedies or prophylactics; while the more obvious and rational, are so constantly neglected. The most certain plan consists in the removal of the virus from the wounded part, and this as effectually, and as speedily, as possible. The local treatment will consist in the only three modes that we possess to fulfil this indication—namely, ablutions and excision; and we may add, the actual cautery.

1048. *Ablutions*, we are convinced, would always succeed, if they were promptly employed and industriously pursued, in cases proper for their operation—for all cases should not be trusted to them. The cases proper for ablutions, are such as have the skin but slightly grazed, or those in which the wound is clean and very superficial. In both of these kinds of wounds, the whole surface of the sore can be commanded; they should therefore be carefully washed by a sponge or piece of flannel with lukewarm soap-suds *teemed from a tea-kettle*; for the water that has once passed over the wound should not again be applied, lest even the much diluted virus be capable of doing mischief. This should be continued for at least an hour; or longer, if it be the wish of the patient or his friends; and it may be repeated in a more gentle manner from time to time, during the first twenty-four hours. We believe, from its success in the case we witnessed, and as related above, that this will give every necessary security—but this plan we must repeat, should be confined to wounds of the nature just described.

1049. *Excision*.—This operation should always be had recourse to, when the tooth of the animal has penetrated even but a little way below the surface of the skin; but the wound should be washed as above directed, until an operator can be procured. In performing this operation, the surgeon should not be too sparing of his patient's flesh, as his security may depend upon the extent of the excision. When the wound has penetrated among the bones of the hand or the foot, amputation has been recommended. Some prefer the destruction of the part by the actual cautery, and this might be the preferable mode of operating, when delay has occurred, as the size of the eschar can easily be commanded. Nor should we be deterred from either of these operations because a considerable time has intervened. For Dr. Babington* mentions several cases in which it proved successful after considerable delay. One in which twenty-four hours had elapsed. Two other cases, one of twenty-three hours standing, the other sixty-eight hours. Another of thirty hours interval; another of *twenty-eight days*; another of three days. "Seven persons were bitten by rabid dogs about the same time. Three did not apply until the third day; two on the second day; two not till *some time*, (the time not specified,) after the accident; the parts were then extirpated, and they all did well. A foal was treated in the same way, bitten five days before; the animal continued well a long time after. On the other hand, the same dog bit a horse, a cow, and two pigs on the same day; no excision was used; and though internal remedies were administered, the animals were all dead within a month; a presumptive proof of the superiority of extirpation. Two other patients, father and son, were bitten, the parts removed about forty hours after the bite."† All these operations succeeded completely.

1050. We cannot place reliance upon the ligature, as warmly recommended by Dr. Good—first, because, if the disease be produced by absorption, the ligature only prevents its progress as long as it is applied, if reliance can be placed upon the experiments of Dr. Pennock. Secondly, it prevents ablutions or excision from being practised; or at least he does not recommend either at the same time. Thirdly, a ligature cannot always be applied. Fourthly, because we do not believe that the disease is caused by the absorption of the virus.

* Medical Researches for 1798, p. 134.

† Hamilton on Hydrophobia.

CHAPTER IX.

DISEASES OF THE EYES.

General Observations.

1051. THE diseases of the eyes and their appendages, the brows, lids, and lachrymal organs and passages—form a class of affections so numerous, diversified and important, as to constitute in many parts of Europe, a separate branch of study and practice; and in the principal universities, their consideration is the province of an appropriate professorship. It will not, therefore, be expected in a treatise on the practice of physic, that we should enter into a particular investigation of these complaints; for even if they be not considered as belonging to a distinct division of our art, at least many of them appertain rather to the province of surgery than to that of physic; and moreover, to treat of them in detail would require more space than we can with any propriety allot to that purpose. All that we shall attempt, will be, to give a general and cursory sketch of the more prevalent and important derangements, or those which the medical practitioner is most frequently called upon to treat; referring those who desire more particular information to the professed works on the subject.

1052. Several distinct structures enter into the formation of the eye, some of which are entirely different from any of the other tissues of the body. The conjunctiva, or the membrane which lines the eyelids, and covers the anterior half of the globe of the eye, though villi cannot be seen on its free surface, may be considered as a mucous membrane, except that portion covering the cornea, which exhibits a nearer approach to the character of serous than to that of mucous tissues. The sclerotica is a fibrous tissue, except its anterior transparent portion, the cornea, which cannot with propriety be arranged in this class.* The membrane lining the chambers of the eye, and covering the iris—called the membrane of the aqueous humour—the choroid and hyaloid membranes, may perhaps without any great error be considered as serous tissues. The retina is a nervous, and the

* Professor Mayer, of Bonn, in his classification of the organic tissues, places the cornea, crystalline lens, epidermis, hair, nails, teeth, &c. in a class to which he has given the name of Lamellar. It may be objected to this arrangement, that the structures he has thus grouped together differ as much from one another as they do from those with which they were formerly arranged.

iris an erectile tissue. The cornea and crystalline lens* differ from any other portions of the body in their structure.

1053. These tissues are all liable to inflammation, which not only varies in violence, but presents a peculiar character in each class, and which even in the same class is modified by peculiarities of constitution in the patient. These variations have afforded to the nosologists an opportunity for the manufacture of species, and the construction of a nomenclature, of which they have not been neglectful; and accordingly we have a host of names, an enumeration of which we will spare the reader.

SECT. I. CONJUNCTIVITIS.—INFLAMMATION OF THE CONJUNCTIVA.

Anatomical Characters of the Conjunctiva.

1054. The conjunctiva is the most delicate of all the mucous membranes; it is exceedingly thin, transparent, devoid of papillæ, colourless upon the globe, and of a rose colour upon the eyelids. That portion which covers the cornea is united to its subjacent coat so closely, that it is difficult to separate them. To the sclerotica and eyelids, it is loosely connected by a fine, cellular tissue; within which, between the conjunctiva and the cartilages of the palpebræ, are a number of small whitish or yellowish glands, consisting of minute, very elongated, narrow, tortuous sacs, which pour out their secretions through small openings, disposed in a regular arcuated line, just within the edge of the eyelids.

Physiological Characters.

1055. The conjunctiva, in a healthy state, secretes a mucous fluid, which is liable to be increased, altered, or suppressed by inflammation. It possesses a high degree of sensibility.

Pathological Characters.

1056. The susceptibility of parts to inflammation, the continuance and violence of the affection, and the facility with which restoration takes place, appear to be in direct proportion to the facility with which their vessels can be distended. From the looseness with which the conjunctiva is connected with the palpebræ and sclerotica, their vessels readily expand so as to admit red blood, and when the exciting cause is removed, unless the

* The aqueous and vitreous humours, though important parts of the organ of vision, cannot be considered as organic tissues—when they become morbid, it is the result of disease in the vessels by which they are secreted.

disease has been of very long duration, as speedily recover their tone, and contract to their original dimensions. Very different, however, is the case with respect to the corneal conjunctiva; it is united to the cornea by such a dense connecting texture, that its vessels are prevented enlarging themselves even during high degrees of inflammation, and red blood is only admitted into them when the inflammation is long-continued; but when once distended, their restoration is very difficult, and seldom effected without some derangement in structure and loss of transparency in the part.

1057. Inflammation of the conjunctiva commences by dilatation of its white capillaries or serous vessels, which in a healthy state are not visible, but may now be seen conveying red blood, and as the disease advances, the number of these red vessels increases; the sensibility of this membrane is exalted, and villi usually become apparent. The natural secretion is increased, afterwards altered, and finally pus is poured out, often very profusely. In some rare instances coagulable lymph is secreted, completely agglutinating the ocular and palpebral conjunctiva; one case of this we have seen. A serous fluid and sometimes blood is effused in the cellular tissue beneath the conjunctiva. In the progress of the disease, coagulable lymph is effused in the substance of the conjunctiva; this membrane becomes thickened, hardened, and sometimes on the globe assumes the appearance of tendon. Among the consequences of inflammation, may be noted an excessive and morbid condition of the nutritive actions, occasioning fungous excrescences, especially near the edge of the tarsi, which are sometimes of a fleshy appearance, at others of a hard cartilaginous nature resembling warts, and not unfrequently of a soft, spongy texture, and dark colour, resembling clots of blood.

1058. Inflammation does not readily extend to the corneal conjunctiva, but in severe inflammation of the eye it becomes eventually affected. This is first manifested by a slight haze or dimness produced by a fulness of its serous vessels; these in the progress of the disease become so dilated as to convey red blood; coagulable lymph is thrown out, thickening this membrane, and rendering it opaque. The conjunctiva has little disposition to ulcerate; when ulceration occurs, it is usually the consequence of pustules or small abscesses beneath it.

1059. When inflammation is kept up for a length of time, in the sclerotic conjunctiva, its blood-vessels become permanently enlarged, coagulable lymph is secreted around them, and a membrane is formed, which sometimes appears of a fleshy consistence,* at others like a delicate tissue of vessels.† Baron Larrey

* Pannus of authors.

† Pterygium.

says that pterygium was one of the most frequent sequelæ of Egyptian ophthalmia.

1060. A nodule of fatty matter is sometimes formed under the conjunctiva, by some derangement in the nutrition of the part resulting from chronic inflammation. We have seen small hard bodies, perfectly transparent, in or upon the sclerotic conjunctiva, and which were probably the effect of a similar cause.

1061. Sometimes tumours form on the conjunctiva, composed of a group of varicose veins; we have observed these only at the inner canthus.

Causes.

1062. Inflammation of the conjunctiva, may be excited by a variety of internal as well as external causes; among the former may be mentioned, the abuse of stimulating liquors or food, prolonged irritation of the stomach or alimentary canal, the suppression of perspiration, of the menstrual or hæmorrhoidal discharge, of a periodical or chronic hæmorrhage, or of an habitual sweat, metastasis of gonorrhœa, the retrocession of an exanthematous eruption, &c. To the latter may be referred foreign bodies introduced into the eye, and these may excite irritation either by their mechanical operation, as sand, spiculæ of iron, &c. or by their corrosive or stimulating properties as lime, and different chemical agents, smoke, irritating vapours, &c.

1063. In children it is sometimes produced by the irritation of teething; and Mr. Ware says that he has seen it produced in old persons, by a decayed tooth.

1064. It may also be produced by any cause which determines an unusual quantity of blood to the conjunctiva; or by tight ligatures around the neck interrupting the flow of venous blood from the head, as tight cravats. The tight inelastic stocks worn by soldiers was one of the causes of the conjunctivitis that prevailed so extensively in the army of the low countries a few years since.* Light, also, either direct, or reflected from white or polished substances, produces a determination of blood to the eye, and thus excites inflammation of the conjunctiva. In the different towns upon the coast of Barbary, subject to the Emperor of Morocco, where it is the practice to whitewash the walls of the houses externally, the inhabitants suffer greatly from this disease, while on the opposite shores, where this practice does not prevail, the inhabitants are exempt from it.

* Vleminckx and Van Mons. *Essai sur l'ophtalmie de l'armée des Pays-Bas.* p. 41.

1065. Heat, by its direct stimulus, excites inflammation. Blacksmiths, and those engaged in furnaces, suffer from the disease occasioned by this cause.

1066. Cold acting either directly on the eye, or through the medium of the constitution, is a very frequent cause of the disease, but it is sudden transitions from heat to cold, that is the most prolific source of the complaint. Soldiers on duty, in high latitudes, alternately exposed to the heat of the day and bright light of the sun, and to the cold and dews of the night are often seized with it. In the commencement of August, 1812, great numbers of the French army, in its march upon Smolensk, were affected with ophthalmia, produced by these causes; and the Prussian *corps d'armée*, in 1813, and many regiments of the British army in 1815, suffered from the disease, arising from similar causes. The effects of cold are also very severe when combined with a current of wind. Dr. Smith states that of two detachments of invalids sent from the Mediterranean, most of them were attacked with inflammation of the eyes upon reaching the windy latitudes of England. Mr. Reilly,* surgeon to the British ship *Saturn*, states that when off Brest, in October, 1797, when the weather was damp and the wind east, ophthalmia broke out among the crew, three hundred of whom were attacked with it, and he remarks that the sick list varied with the weather. Soldiers on guard, during a stormy night, and individuals lying opposite to open doors or windows, are exceedingly liable to become affected with the disease under consideration. In France, during the conscription, it was not uncommon for the young men to procure an habitual ophthalmia by exposing their eyes to a current of air from a key-hole or crack, and thus obtain a discharge, for which they often paid with the loss of an eye.†

1067. Moisture exercises a very baneful influence over this affection. Dr. Vetch states that there was not a single case of the disease, in the 54th regiment, (in which it prevailed,) of a violent form until the 24th of September, when after a very heavy fall of rain during the night, to which the men affected with the ophthalmia were more particularly exposed, by being at the time under canvass, the whole number of patients, thirty-four, were found in the morning with their eyes completely closed by the swelling of the palpebræ, attended with the excruciating pain, the purulency, and other symptoms of the disease in its most alarming and inveterate form. He further remarks, that the changes in the state of the disease were uniformly influenced by those of the weather, and afforded the most unequivocal proofs

* Trotter's *Medicina Nautica*.

† *Dictionnaire des Sciences Médicales*.

of the deleterious consequences which result from an increased humidity of the atmosphere. He adds, "the disease is so frequently aggravated in wet or foggy weather as to attract the attention of every person connected with it."*

1068. In Egypt, where the days are generally hot, and the nights cold and damp, the disease prevails to an enormous extent; and we can readily understand why inflammation of the conjunctiva is produced more frequently than gastro-enteritis, since the former membrane is kept in a constant state of irritability by the excessive heat of the days, by the bright light reflected from the sands of the desert, and by the dust with which the atmosphere is constantly loaded.

1069. Whenever a great number of persons are crowded together for any length of time in close, ill-ventilated apartments, disease is almost invariably generated; in some instances we have inflammation of the conjunctiva; in others, inflammation of the other mucous membranes, dysentery, fevers, &c. In what precise manner the impure air of these situations acts, we are not prepared to show; that, especially where the eye is previously in a state of excitability, the disease is often excited by the difference of temperature experienced in removing from the air of these places, heated during the night, to the cool air of the morning, we think no doubt can exist; but the *impurity* of the air seems also to affect the conjunctiva, and certainly when this organ is inflamed, it aggravates the disease. When the eyes are predisposed to inflammation, remaining long in a crowded room, is exceedingly prejudicial. In several divisions of the British army, in which puriform inflammation of the conjunctiva prevailed, the disease disappeared on their being sent to the Peninsula and employed in active service. On their return they were placed in barracks, and in six months the disease again became prevalent, and was again arrested on the troops being sent into service.†

1070. Soldiers in barracks suffer much from ophthalmia. The eyes of this class of persons are generally kept in a state of irritation by the light of the sun, the dust to which they are exposed during their long and frequent drills, and the conjunctiva is often injected with an undue portion of blood in consequence of the return of that fluid from the head being retarded by their stiff collars and tight dress. With their eyes in this state they are crowded together at night in barracks, the atmosphere of which becomes impure and heated, and at sunrise they are obliged to leave their heated quarters and expose themselves to the cold

* Edinburgh Medical and Surgical Journal.

† Vetch. A Practical Treatise on the Disease of the Eye, p. 188.

air of the morning, and are thus exposed to a difference of temperature equal to that between the day and night of tropical climates.

1071. Inflammation of the conjunctiva is likewise of frequent occurrence in ships, and children's asylums. In 1782, a violent form of the disease broke out on board the English ship of war *Albemarle*, and in 1797, in one of the ships of the squadron off Brest. In one instance it appeared on board a French slave ship, where it deprived many of these unfortunate people of vision, and spread so extensively among the crew, that only one of them was left with sight to bring the ship to Guadaloupe.

1072. In the Hospital for Children at Paris, this affection prevails almost constantly; it is also of frequent occurrence in the Foundling Hospital of Bruxelles. In 1804, it made its appearance in the Royal Military Asylum, near London, for the children of soldiers, and spread with such rapidity, that from April to the end of the year, three hundred and ninety-two children were attacked with it; it also appeared in the spring and autumn of several succeeding years. In the Children's Asylum of Philadelphia, under the care of the guardians of the poor, the disease prevailed for several years, and often to a distressing extent.

1073. New-born children are very subject to purulent ophthalmia. This is sometimes produced by vicissitudes of temperature, exposure of the head to cold, and perhaps soon after to the heat and light of large fires, the use of dirty sponges to the face and eyes, and by the vitiated air of lying-in hospitals; but by far the most frequent cause of the disease is the matter of leucorrhœa or of gonorrhœa, which probably is applied to the eye while the head is in the vagina. If the mother has either of these affections, or indeed any morbid secretion from her vagina, the child, unless its eyes be carefully washed immediately after birth, will in a large majority of cases, be afflicted with the disease.

1074. Ophthalmia is also produced in adults, by the gonorrhœal matter being, through carelessness, applied to the eye. Sometimes, upon the suppression of a discharge from the urethra, inflammation of the conjunctiva makes its appearance, caused as it has been supposed by a metastasis; but we suspect that such an occurrence is by no means so common as is believed.

1075. The purulent secretion from the inflamed conjunctiva, like all other morbid secretions, when applied to the eye, will excite inflammation. Many surgeons have disbelieved this, and M. Hupsch, a surgeon attached to the army of the Netherlands, was so incredulous, that he submitted to be inoculated with this secretion, and in twenty-four hours he was attacked with an inflammation so violent as to endanger his sight. M. Kirkhoff inoculated different individuals with matter flowing from patients

afflicted with ophthalmia, and although, in so doing, he scarcely touched the edges of the eyelids, and in such a manner that it could not act as a foreign body, ophthalmia followed in one, two, or three days. M. Guillé also introduced, under the eyelids of four boys, born blind, some mucus taken from the eye of a person labouring under purulent ophthalmia, and they were removed from all other infection supposed to have a prejudicial influence, and inhabited an airy, healthy situation, yet they each had an attack of purulent ophthalmia. We have seen the disease in some instances communicated to several in a family, from wiping on the same towel with one who was suffering from the complaint.

1076. By many surgeons, inflammation of the conjunctiva, attended with puriform discharge, is supposed to be propagated by a specific contagion. So eminently contagious does Mr. Edmonston consider the disease, that he believes, "the simple inspection of the eye of a person labouring under the disease, to be sufficient to produce it in another;" and in proof of the correctness of this belief he relates the following circumstance with becoming gravity:—"Two serjeants came one day to the hospital together, complaining of sore eyes; one of them had been affected three hours before he made any application; and one hour before presenting himself at the hospital, he requested his friend to look at his eye. The other complied, and declared to me that while looking at the eye of his comrade he felt a pain in his own. Although only one hour had elapsed from the time of the first uneasy sensation, the tunica adnata was covered with blood, and the watery effusion had taken place." The question of the contagious nature of this disease has been amply examined by us in the thirteenth volume of the Philadelphia Journal of the Medical and Physical Sciences; and we think it has there been shown that there is not a particle of evidence of this disease being propagated by a *specific virus*.

1077. Inflammation of the conjunctiva sometimes prevails epidemically. At the commencement of the present century it is said to have spread over France, Holland, and almost the whole of the north of Europe. During the months of February and March, 1803, this disease prevailed very generally over Paris. It commenced about the 26th of February, and before the 20th of March nine-tenths of the inhabitants of every class had been affected with it. The complaint was so common, that it was denominated *maladie à la mode*. Strangers arriving in Paris in perfect health, were often attacked the day after their arrival. The disease was often connected and alternated with the influenza, which had raged in that city for a considerable time, and

was then beginning to abate.* It occurred frequently with the influenza that prevailed in Philadelphia during the winter of 1826—7.

1078. Such, as I have enumerated them, are the usual causes of inflammation of the conjunctiva; and according to the activity of these causes will be the violence and extent of the inflammation, while its character will be modified in some degree by the peculiarities of the constitution of the individual in which it occurs.

1079. Inflammation of the conjunctiva may be divided into acute and chronic, though the latter is often only an imperfectly cured state of the former; it nevertheless sometimes exists without any well-marked preceding acute stage.

Symptoms of Acute Inflammation.

1080. Acute inflammation usually commences in the palpebral conjunctiva, the vessels of which first become engorged, and may be often seen running in fasciculi, and sometimes slightly elevated; the natural secretion of the part seems suppressed, and its sensibility exalted. The engorgement of the vessels, with suppression of their secretions, produces a sensation of fulness and dryness, sometimes an itching, with a disposition to rub the eye; as the eyelid passes over the ball, the elevated vessels rubbing upon the sclerotic conjunctiva, a sensation as if a grain of sand or some foreign body were in the eye is produced, and it is frequently almost impossible to convince the patient that this sensation is deceptive. From the accumulation of blood in the conjunctival vessels there is increased redness, and the blood also being the great source of animal heat, the temperature of the eye is augmented, and as the sensibility of the part is exalted, a sensation of burning is often experienced. This constitutes the *first stage*, or that of simple engorgement.

1081. In the *second stage* the vessels relieve themselves by an increased secretion; the meibomian glands are usually implicated, and their secretion which in the first stage is often suppressed, now becomes increased, after a while vitiated in quality, and during the night its more fluid parts being absorbed, the lids are glued together and are with difficulty opened in the morning. The excretory ducts of these glands are often blocked up by an incrustation of this secretion, and if care be not taken to remove it, ulceration will be produced. The lachrymal gland, soon sympathizes in the disease, its secretion is sometimes lessened, at others suppressed, most frequently it is increased

* Edmonston, Treatise on Ophthalmia, p. 49.

in quantity, and from the exalted sensibility of the parts, produces a sensation of scalding; after a time it becomes vitiated in quality and produces an excoriation of the cheek over which it passes. The redness, which at first was confined to the palpebral conjunctiva, now spreads over the sclerotic portion.

1082. In the *third stage* the redness becomes more uniform and intense, and the conjunctiva assumes a villous appearance. Effusion takes place in and beneath the conjunctiva, usually commencing in the palpebral portion. This effusion consists of a serous fluid, sometimes when the inflammation is violent, of blood. In proportion to the quantity of this effusion, the conjunctiva becomes thickened, and as the palpebral portion swells, it everts the lids, producing what is called *entropion*. The sclerotic portion also becomes thickened, elevated, often protrudes between the lids; while the cornea appears deeply sunk in the globe, the conjunctiva covering the cornea, being so intimately connected with that part, as not to admit of effusion beneath it. This condition of the sclerotic conjunctiva is called *chemosis*. The secretion from the free surface of the conjunctiva is increased, and assumes a puriform character; the quantity of purulent fluid secreted from this part is often surprisingly great, greater perhaps than from any other mucous membrane of equal extent; we have frequently seen pus run from the eye in a continuous stream. The retina now often sympathizes with the conjunctiva, and there is intolerance of light; which is frequently so great, especially in children, that it is extremely difficult and sometimes impossible, to open the lids so as to examine the globe of the eye. Even when we succeed in separating the lids, the orbicularis, in consequence of the photophobia and irritation of the disease, contract with such power, as to produce an eversion of the lids and the protrusion of the swelled conjunctiva still impedes the view. When the lids are everted in the effort to examine the eye, great care should always be taken to restore it to its proper condition, or serious consequences may result. Their restoration may be accomplished by pulling gently at the eyelash, and if it does not succeed, by pressing at the same time upon the protruded conjunctiva.

1083. Coagulable lymph is next effused into the conjunctiva, which becoming organized that membrane assumes a fleshy appearance. At this period or even earlier, the cornea, sclerotica and the internal parts of the eye become implicated, and there is then in addition to the symptoms of inflammation of the conjunctiva, all the effects of inflammation of the whole globe.

1084. As long as the inflammation is confined to the conjunctiva, the pain is trifling; we have seen the conjunctiva of an uniform red colour, elevated all round the cornea, the eyelids swell-

ed, and the discharge of pus profuse, and yet the patient not complain of pain. But when the other membranes of the eye become affected, the pain is excruciating; there is an increased secretion of aqueous humour, the eyeball feels distended, with an occasional sensation as if needles were thrust into the eye, accompanied with fulness and throbbing of the temples and deep-seated pain in the globe of the eye. This pain is often intermittent; at one moment it will be very violent, at the next it will disappear, and sometimes it shifts instantly from one eye to the other.

1085. At this period the cornea sometimes ulcerates, and its internal lamina is projected forward by the pressure of the aqueous humour; at other times the cornea ruptures, the iris is forced through the opening, and occasionally closes it—not unfrequently rapid sloughing of the cornea takes place, the whole contents of the globe are discharged, and sight irrevocably lost. It occasionally happens that the cornea sloughs extensively, the aqueous humour is evacuated, and the lens covered only by its capsule, advances against the opening; under these circumstances, the patient who has long been deprived of vision, sees very distinctly, and enjoys the most pleasing anticipations of an entire recovery of sight, but the capsule soon bursts, and the disappointed victim is plunged into utter and perpetual darkness.

1086. The violence of the disease being thus expended, the redness generally subsides; absorption of the effused lymph and serum commences, lessening the tumefaction of the lids, and with it the inversion of the tarsi. But if the inflammation has continued for any length of time, the conjunctiva has become thickened, indurated, and near the edges of the tarsi especially, granulated; and when the œdema of the lids disappears, the edges of the eyelids are more or less inverted, according to the greater or less degree of the diseased or granulated state of the palpebral conjunctiva. If the inversion is considerable, the sclerotic conjunctiva, from exposure, or in other instances from the irritation produced by a granulated palpebral conjunctiva, is kept in a constant state of irritability or chronic inflammation, and by the slightest causes, acute disease is frequently and readily excited. If relief is not now speedily afforded, the cornea becomes permanently disorganized, thickened, often ulcerated, and staphyloma or prolapsus iridis results, or the contents of the globe are lost.

1087. Such is the course of inflammation of the conjunctiva, but the progress of the disease cannot always be distinctly traced, nor does it always run the regular course we have described. Sometimes it proceeds with such rapidity as to arrive at its utmost violence in a few hours, at others its progress is very slow.

In many instances the disease continues in its first stage for days, weeks, and even months, or only advances to the second stage, and then subsides entirely; in others, some exciting cause rouses the disease into activity, and then it may run its course with extreme rapidity.

Symptoms of Chronic Inflammation.

1088. The progress of chronic inflammation of the conjunctiva is very irregular. It usually commences, like the acute, in the palpebral conjunctiva, and is often confined principally to that part. The conjunctiva becomes of a uniform redness, and a little livid, it is thickened by an effusion of lymph, and converted into a dense reddish tissue of a fleshy appearance. There is lachrymation, with a slight puriform discharge, and an increase of the secretion from the meibomian glands, by which the eyelids are glued together at night.

1089. Little pustules sometimes form, which burst and discharge an ichorous fluid, leaving small ulcers; these extend over the whole edge of the tarsus, especially the lower, and if not cured, involve and destroy the ciliary follicles; the ciliæ of course fall out, and the fine cuticle of the lid becomes excoriated. This form of the disease is very common in children, and sometimes lasts the principal part of their lives. When this happens, it is, we believe, the fault either of the patient or the practitioner, as we have never seen a case with the requisite attention, resist proper treatment for one month; and we have cured cases of eighteen and twenty years duration in less time.

1090. We have mentioned among the sequelæ of acute inflammation, a granular state of the palpebral conjunctiva. This state is also frequently produced by chronic inflammation of a very slight character. Granulations are small round bodies, sometimes of a fleshy appearance and consistence; at others pale, and of a hard cartilaginous nature; and not unfrequently of a soft texture and dark colour, like clots of coagulated blood, and discharge that fluid copiously upon being slightly touched, even in some cases by the mere motion of the lids. They are generally dispersed over the whole of the inner surface of the lids, sometimes they appear confined to particular parts, and are always most luxuriant at the edges of the tarsi. The irritation caused by these granulations, keep up a constant chronic inflammation of the sclerotic conjunctiva and cornea; and where the inflammation of these parts appear to be the only affection, on examination it will often be found to be entirely dependent upon the state of the palpebral conjunctiva we have described.

1091. We pass over the other effects of chronic inflammation as of minor importance, or as appertaining more particularly to the province of surgery.

Inflammation of the Conjunctiva in Irritable Constitutions.

1092 This form usually occurs in children of irritable habits, with swelled abdomens, disposition to enlarged lymphatic glands, and that state of constitution usually designated by the vague term *scrofulous*. It is remarkable for the great intolerance of light which attends it, and which is entirely disproportionate to the amount of inflammatory action. In these cases, from peculiarity of constitution, the retina promptly sympathizes with the conjunctival inflammation, and hence the photophobia.

1093. In the description of persons we are now speaking of, the disease, as in the other forms, commences in the palpebral conjunctiva; there is often some pain at first, which generally afterwards disappears; and profuse lachrymation, the tears being hot and acrid, and irritating the cheek over which they pass. From the great intolerance of light, the child usually has its hands to its eyes, and its head is constantly buried in its nurse's lap, or in its pillow. Extreme difficulty is always experienced in examining the little patient's eyes, even the ordinary light of day being intolerable.

1094. The meibomian glands are always implicated, their secretion is vitiated, and ulceration of the tarsi often occurs, also chronic thickening of the palpebral conjunctiva; the cornea becomes generally affected, as is shown by the effusion of lymph, producing opaque spots. This opacity is rarely general.

1095. The form of inflammation we are now considering, also frequently appears with cuticular disease, and alternates, or is concomitant with sore eyes, sore head, or eruptions on the head and face, and similar marks of deranged constitution.

Pustular Conjunctival Inflammation.

1096. The conjunctiva, like other mucous membranes, is liable to the formation of pustules, they usually occur on the cornea or near its margin. We shall describe them in treating of inflammation of the cornea.

Treatment.

1097. The treatment of inflammation of the conjunctiva consists in the reduction of the inflammatory action, and this may

be effected by the use of general and local remedies, either alone or conjoined, as may be required. Among the former may be mentioned general blood-letting, emetics, nauseating doses of antimonials, purgatives, diaphoretics, &c.; the latter consists of local bleeding, blisters, and various astringent and stimulating applications.

1. *Blood-letting.*

1098. This is unquestionably one of the most important means for subsiding inflammation; but to be of utility it must be properly employed, and we shall therefore enter into a full consideration of this remedy.

1099. In the forming stage, when this stage is distinctly marked, the inflammation is usually mild, and venesection is rarely demanded.

1100. In the second stage, a moderate bleeding from the arm will frequently be required; and it will be often necessary, afterwards, to detract blood locally by cups or leeches to the temples or behind the ears. In some cases, topical depletion will be sufficient. The quantity of blood to be detracted in all cases must be determined by the urgency and violence of the inflammation, and the constitution of the patient. No precise rules can be laid down on this subject; and it is here that the physician will find it necessary to employ all his discernment and experience. When, however, the symptoms of this stage are violent, and the disease threatens to run speedily into the next stage, depletion must be carried to the same extent as will be devised for the treatment of the third stage.

1101. In the third stage the safety of the eye depends upon the boldness with which blood is drawn. When the inflammation is very violent, it runs through the first and second stages, with such rapidity, that when the patient is first seen, there is usually, already chemosis, purulent discharge, lachrymation, &c. No time is here to be lost; moderate depletion is worse than useless, weakening the patient without lessening the inflammatory action. A vein should be opened in the arm and the blood allowed to flow till a decided impression is made upon the system. The first to recommend blood-letting to such an extent, was Mr. Peach. He advises blood to be detracted *ad deliquium animi*, without regard to the quantity; he once at a single bleeding took 77½ ounces, which completely overcame the disease, nor had it any pernicious, or even the slightest ill effect on the general health of the patient. We suspect however, that it will rarely be necessary to draw blood to such an extent, fainting being usually produced if the patient be bled in an upright position

before twenty ounces are detracted. In cases, says Mr. Vetch,* "where the patient is capable of losing a very large quantity of blood, as soon as the countenance is observed to change, in the full assurance that a state of *deliquium* will succeed, the arm may be bound up. I found experience of great use in informing me whether this event would take place or not, saving by this means the necessity of suffering the blood to flow until syncope actually came on; but the unexperienced must be cautious, and not trust to this issue, for if it does not succeed, and the orifice be again to be opened, the system having had time to rally, more blood will be abstracted than if no interruption had taken place. The erect posture is well known to be favourable to the success of the operation, in inducing syncope. Opening a vein in both arms is also recommended, but so harsh a practice need seldom be employed. The fear of the operation, it is well known, will often occasion both nausea and syncope, but I never found that the latter produced in this way was to be relied upon as a substitute for the further evacuation of blood. It was observed, that at a second blood-letting, though repeated in a short time after the first, the quantity necessary to produce syncope was generally larger than was lost by the first operation. Before the principle on which the success of this remedy chiefly depends was properly understood, when large blood-lettings were more frequently repeated, and when, on the whole, much more blood was abstracted than by the practice I recommend, the sensible change produced on the appearance of the blood itself, was a diminution of the relative quantity of crassamentum to the serum, and of the specific gravity of the mass. The serum seemed also to hold a greater quantity either of gelatine, or albumen in solution, as it sometimes became white and turbid. The average quantity of blood abstracted before the approach of syncope appeared to be from twenty-four to thirty-four ounces."

1102. With the exception of symptoms of ephemeral fever, and the temporary debility which must of course follow the loss of blood and a spare diet, Mr. Vetch says, that he never could trace any constitutional disease, weakness, or derangement to be connected with this treatment. He adds however, "there are two descriptions of habit and temperament in which the system is longer in recovering from large blood-letting than in others," "the first is that of corpulency, and the other where the powers of the mind have been more developed than those of the body, and attended with irritability of both. Men of a spare thin muscular frame universally lost a greater quantity of blood, without

* Opera Citata, p. 221, &c.

exhibiting any alteration of countenance or disposition to syncope.

1103. "Fat people, or those who have a tendency to the formation of fat, faint by the loss of a small quantity of blood. Although such people may be liable to disease, arising from the obstructed passage of the blood in particular parts of organs, I believe there are none in whom the existence of real plethora is more rare. The deposition of fat withdraws something from the quantity of blood made by the system, while, by enlarging the surface of the body, a greater quantity of that fluid is required to maintain the vigorous action of the extreme vessels."

1104. In drunkards and those of broken or extremely delicate constitutions, in whom the power of reaction is very feeble, blood must be drawn more cautiously: the chance of a cure in such persons is of course less. The practitioner must not however be deterred from active depletion, because the pulse does not indicate blood-letting. No greater error can be committed in practice, than that of omitting to detract blood in cases where we have evidence of local inflammation, because the pulse does not indicate it. Inflammation may go on to the destruction of a part, without the heart sympathizing or being at all excited. The absence of pain must not mislead either. This symptom is often absent in inflammation, especially of mucous membranes, and if a favourable termination is anticipated from the absence of this symptom, and mild measures adopted, the most melancholy consequences will result. We have lately seen a case of purulent inflammation of the conjunctiva commencing in one eye, in which the physician was deterred from general depletion by the state of the patient's pulse. Topical depletion by cups was several times resorted to, but without arresting the disease, and as the patient bore the local depletion well, and as the other eye was becoming affected, venesection was cautiously resorted to, and afterwards vigorously pursued. The time lost in the first instance, was however, fatal to the eye first attacked; the other eye was saved by the copious blood-letting afterwards employed.

1105. If the acute symptoms return after the first bleeding, the operation must be repeated to a greater or less extent according to the violence of the disease.

1106. Opening the temporal artery or jugular vein, has been recommended as more effectual than venesection, but we consider it to be obnoxious to many objections.

1107. After general depletion has been carried as far as prudence will justify, if the disease be not subdued, we must have recourse to topical. This may be effected by cups or leeches, and the best place to apply them is to the temples or to the back of the neck. Some practitioners apply leeches to the lids, to

the eyeball, and to the palpebral conjunctiva, first inverting the lid: we have never seen them applied to these situations in acute inflammation, without their being productive of injury.

1108. Scarifications of the conjunctiva have been extolled as extremely useful. When there is chemosis and after the violence of the inflammation has been subdued by other measures, scarifications may be useful; they should be made freely and bleeding encouraged by warm fomentations. In acute inflammation, where there is no chemosis, we have found them invariably detrimental; adding greatly to the irritation. There is another mode of topical depletion, which has been long practised, and particularly recommended by the late Mr. Ware. This consists in the excision of a portion of the conjunctiva including the turgid vessels on its surface. Mr. Ware considers this as preferable to a simple division of the vessels, as in the latter case, reunion of the vessels often takes place almost immediately.* In the first or second stages of the disease, I should consider this altogether inadmissible, from the pain and irritation it would excite; but when there is chemosis, or when the inflammation has subsided and left the vessels in a varicose state, it will no doubt be often useful. The operation may be performed by raising the part or vessels to be excised by a small hook and dividing them with scissors.

2. *Purgatives.*

1109. As co-operating with the depletory measures already recommended and as producing a determination from the head, purgatives should not be neglected. Of these perhaps the Epsom salt is the best, it may be given alone or combined with emetic tartar, as follows; sal. Epsom, \bar{z} j. and tart. emet. gr. j. in solution. This will be found a very useful combination, it evacuates the bowels, produces a determination from the head, and by the slight nausea it induces, lessens arterial action; it may be repeated every day, or every other day, according to circumstances.

3. *Nauseating Doses of Antimonials.*

1110. After the system has been reduced by general depletion, tartar emetic given in small doses, so as to produce nausea, will be found eminently serviceable. Nauseants will not answer as substitutes for more vigorous measures, but they are highly useful as adjuvants, in keeping down arterial action. They may be used with advantage where there is a great *tendency* to inflam-

* Chirurgical Observations, &c. p. 40, 41.

mation, and where the symptoms show a disposition to become aggravated as soon as the system recovers from the state produced by previous evacuants.

1111. We commonly combine the emetic tartar with *nitre*, and sometimes calomel, in the form of the nitrous powders, and we think with great advantage. Sal. nitre, ʒjss.; tart. emet. gr. j.; calomel, gr. vj.; div. in chart. vj.; one to be given every one, two, or three hours.

4. *Diaphoretics.*

1112. In violent conjunctivitis, diaphoretics are rarely indicated, but in the early stages of mild inflammation, and when the affection is combined with catarrhal symptoms, they may be used with advantage. The best is probably the Dover's powder; of this ten grains may be given at night, and perspiration promoted by draughts of hot lemonade. Dr. Kirchoff says, that he has several times found, that if the warm bath was frequently used the moment the earliest symptoms appeared, the disease might be at once arrested; but if inflammation was already established, this application served only to increase it. Hot pediluvia, to which mustard should be added, are often productive of great utility.

5. *Tonics.*

1113. In patients of weak and irritable habits, or those whose constitution is destroyed by the excessive use of ardent spirits, &c. the inflammation early spreads to the cornea, producing ulceration and sloughing of this part. The edges of the wound appear ragged and unhealthy, and the strength of the patient is mostly prostrate. In such cases tonics will be demanded; the best are the cinchona, sulphate of quinine, and sulphuric acid.

6. *Diet.*

1114. During the existence of acute inflammation, the diet should be of the strictest antiphlogistic nature. In some cases it will be necessary not only to restrict the patient to bread and water, but even to limit the quantity of the former. Toast-water alone is sometimes sufficient. Barley-water or rice-water acidulated with lemon-juice, or lemonade may at other times be allowed. As the inflammation abates, rice, sago, oatmeal gruel, and panada, may be taken; also the acid fruits, grapes, peaches, &c. and the scale of diet gradually increased as the inflammation ceases. In those cases in which we have recommended tonics, (see par. 1113,) a generous diet must be allowed; this may con-

sist of sago, or tapioca, with a little wine or spices, light and digestible meats, &c.

7. *Blisters.*

1115. As in other inflammations, blisters have been highly recommended in that of the conjunctiva. However useful they may be in other inflammations, and though in some varieties of ophthalmia the advantages derived from them are decided, yet in the affection under consideration their utility is by no means unequivocal. When applied near the seat of the disease, particularly in the early stages, we have never seen them fail to aggravate the inflammation. The excitement which they produce extends to the eyes, and their application is found to be injurious rather than beneficial. But in the latter stages of the disease, where there is a good deal of local action, and after depletory measures had been used, blisters applied behind the ears or to the nape of the neck may be found serviceable. Some practitioners recommend the blisters to be put over the eye, and assure us that they are, when thus applied, productive of much benefit; we have only to regret that in our experience such has not been the result.

8. *Local Applications to the Eye.*

1116. We confess ourselves to be at a loss how to convey to our readers instructions for the employment of this class of remedies. When judiciously used, they save the patient a great amount of suffering, and the physician an infinity of trouble; when improperly employed, they not only aggravate and lengthen the disease, but often prove even destructive of vision. We have known patients in whom all acute inflammation had been subdued, and the vessels continuing to convey red blood from mere weakness or inability to contract to their natural dimensions, restricted to the lowest diet, repeatedly bled, and daily purged; the disease all the time remaining stationary, while the patient's strength was becoming exhausted, and a most distressing nervous state produced. In this condition, losing all patience, they have sometimes dismissed their medical attendant, and applied to another practitioner, who has cured them at once by the employment of a stimulating ointment. It much more frequently, however, happens, that irreparable mischief is produced from the use of these remedies at an improper stage of the disease. Those afflicted with ophthalmia often lose their patience before the inflammation has been subdued, or neglect to take proper advice, and apply to their eyes at the recommendation of some

kind friend or *busy gossip*, a stimulating ointment or wash, whence often results so violent an aggravation of the inflammation as to prove entirely destructive of sight. Dr. Rowley, in his Treatise on the Diseases of the Eyes, says, "I can speak from an experience which few have ever enjoyed, that scarce *one instance of blindness* amongst hundreds has happened, in which I could not trace the misfortune to be principally owing to *poultices* or some ignorant *outward application*, while the eyes were inflamed. The phrase of 'the eyes are not to be tempered with,' is almost proverbial; yet ignorance dares, no doubt with the best and most humane intentions, to prescribe injurious remedies in the most difficult and dangerous diseases." A favourite remedy with many "old women" of this city, is molasses, probably in consequence of their having seen it useful in removing opacities of the cornea; for when applied to the eye after all inflammation has disappeared, it is sometimes successful in stimulating the absorbents to the removal of the coagulable lymph effused during inflammation. Having observed it useful under such circumstances, with that want of discrimination which always characterizes ignorance, they apply it indiscriminately in all the stages of inflammation; and no sooner does one of these officious gossips see a child with an inflamed eye, than she forthwith thrusts her finger into the molasses bowl, and separating the eyelids of her unfortunate victim, she wipes her finger over the eyeball; as may be supposed, the inflammation is always aggravated, and often to such a degree as speedily and irrecoverably to destroy the sight. We are afraid to mention the number of victims, we have seen, to this practice.

1117. The careful and observant practitioner soon acquires a tact in the use of these remedies, which it is impossible to convey by language; we shall lay down, however, some general directions, which will, we think, prevent any great error in the employment of local applications.

1118. Local applications may be divided into those which act principally by their temperature, and those which are stimulating or astringent. Cold effusions have been employed from the earliest periods. Bartolinus states that a physician, his colleague, cured himself of an ophthalmia by the application of a snow-ball. M. Beaupré is of opinion, that when the disease is produced by an internal cause or cold, that cold applications are improper; but when it is excited by the introduction of irritants into the eye, cold may be had recourse to with great advantage. The irritant being first removed, these applications usually relieve the pain, dissipate the redness, and prevent the progress of inflammation. The best cold applications are cold water, solutions of acetate of ammonia, or sugar of lead.

1119. In the acute stage of conjunctivitis, produced by general causes, especially when attended with pain, as is always the case where the sclerotica becomes involved, cold often aggravates this symptom, and in that case tepid or warm applications always afford relief. The best of these are fomentations with warm water, or a decoction of the leaves or heads of the poppy; they should be applied till relief is afforded, and then discontinued. Warm poultices sometimes relieve the pain; but we cannot recommend their use. If the inflammation has a tendency to extend to the cornea, the disposition of this part to take on inflammation is promoted by these applications, and we fully concur with Dr. Vetch, that the relief they afford is in the highest possible degree treacherous; and that so obvious is their tendency to afford relief, by accelerating the destruction of the cornea, that a patient should be entitled to recover damages in whom the disease had terminated unfavourably, whenever it has done so under the application of a poultice.*

1120. There are periods in inflammation of the conjunctiva in which stimulants have been used with advantage. The first is in the forming stage, or where there is only simple engorgement of the vessels. The Hindoos apply lime-juice and powerful astringents; and in other warm latitudes, where the disease prevails, the natives generally squeeze some pungent vegetable juice into the eye on the first attack. Mr. Vetch acknowledges that these remedies are hazardous, and recommends the liquor plumbi acetatis, in its undiluted state, as an application, "the most efficacious, and at the same time incapable of doing harm in this and every stage of purulent ophthalmia. The sensation it occasions is that of some sand or dust having got into the eye, which lasts from ten to twenty minutes; there is generally a copious lachrymation, and the eye afterwards feels cool, and the sight clear."† Some practitioners highly extol the solution of nitrate of silver, which they use very strong, (ten grains to the ounce,) and they say with the most decided advantage. We cannot however, but esteem all these remedies as hazardous at the commencement of acute conjunctivitis, because it is extremely difficult often to decide the limits between simple engorgement and inflammation; and if the latter be mistaken for the former, the progress of the disease will be accelerated, and its violence greatly augmented. Hence, though when timely applied, these remedies are useful, when there can be any doubts on the subject they should never be employed.

1121. After the violence of inflammation has been subdued, the utility of these remedies are undoubted. One of the best is

* Op. Cit. p. 40. † Ib. p. 205.

the nitrate of silver, and we have found the solution of one or two grains to the ounce of sufficient strength; some practitioners however, recommend a solution of ten grains to the ounce, but we have never ventured upon so strong a solution.

1122. Dr. Varlez, of the Military Hospital of Brussels recommends the chloruret of the oxide of calcium, in solution, from one scruple to four drachms, to an ounce of distilled water. Mr. Guthrie has also used it in several cases treated at the Royal Westminster Infirmary for Diseases of the Eye, with advantage.* We have had only one opportunity of trying it, in the Pennsylvania Infirmary for Diseases of the Eye, but in that one we were much pleased with its effects.

1123. The solutions of the sulphate of zinc, the acetate of zinc, the sulphate of copper, the acetate of lead, &c. have been recommended, and we have sometimes employed them with advantage. The best mode of applying all these solutions, is to separate the lids, and to inject them into the eye by means of a small syringe.

1124. The vinous tincture of opium has been highly extolled by the late distinguished ophthalmic surgeon, Mr. Ware,† we have not however been satisfied with its effects. The ordinary tincture and the watery solution have also been recommended, we cannot speak of their value from experience.

1125. Mr. Vetch, highly extols the infusion of tobacco; he says "it possesses the valuable properties of acting as a powerful astringent, restraining the purulent discharge, and diminishing the œdema or external swelling of the palpebræ; at the same time that its narcotic qualities often relieve the pain and the perpetual watchfulness which the largest doses of opium cannot subdue. The infusion of two drachms of the leaves to eight ounces of water is so powerfully astringent as to corrugate the skin of the fingers when they have been for some time immersed in it. The proper time for the remedy is at night." We shall not attempt however to specify all the stimulants that have been recommended, their number being almost infinite; the preceding will perhaps be sufficient.

Treatment of Chronic Conjunctivitis.

1126. When the inflammation of the conjunctiva is mild from the commencement, or assumes a chronic character on the subsidence of the acute stage, a treatment somewhat different from

* American Journal of the Medical Sciences, Vol. I. p. 459.

† Remarks on the Ophthalmy, &c. 2d edition, p. 47.

that which we have just recommended will be required. Venesection here will seldom be demanded and never to the extent advised in the acute stage. Topical depletion by cups or leeches, will be found much more serviceable, but even this remedy will not always be necessary. Purgatives, blisters behind the ears, to the back of the neck, to the arm or leg, are kept discharging; or a seton to the neck; pediluviae, and light diet, should constitute the general remedies.

1127. The stimulating applications, as the solution of nitrate of silver, sulphate of copper or zinc, alum curd, &c. will be found here eminently serviceable. Dr. Physick, some years ago was induced to try the tar water, in a case which resisted the usual remedies, and with the most complete success. The vapour of the spirit of turpentine has been recommended; in one case we believe it to have been serviceable; the mode of applying it is to hold the eyes over a saucer or plate containing some of this fluid. Care will however, be required, both in the use and selection of local remedies. When they seem to aggravate the inflammation, they must be abandoned and antiphlogistics exclusively used. When one of these local applications, however, is of no service another will often succeed, and it is also useful to change the remedy when it seems to lose its power; and it may after a time be again recurred to.

Treatment of Conjunctivitis in New-born Children.

1128. In new-born children venesection is not demanded; depletion may be effected by means of two or three leeches to each temple. The bowels must be kept freely open by magnesia alone or combined with rhubarb; cold applications must be used externally, and the eye frequently washed with tepid milk and water. After the violence of the inflammation has been thus subdued, a solution of nitrate of silver or sulphate of zinc, or of alum, should be injected frequently between the lids, by means of a small syringe, and the lids prevented from adhering and confining the secretion by frequently washing them. It is of great importance to attend to this direction, as when the lids become adherent great irritation is caused by the force however small, used to separate them, as well as by the distention caused by the accumulation of the secretion. The eye should therefore be cleaned every half hour or oftener, and this direction is equally important to be attended to in adults.

1129. When sloughing of the cornea takes place, the sulphate of quinine must be given, but if the early stage is properly treated, this will rarely if ever happen.

1130. When the disease subsides more or less opacity of the cornea is generally left, which must be treated in the manner we shall point out in the section on diseases of that coat.

Treatment of Irritable Conjunctivitis.

1131. In the acute stage the inflammation must be subdued by topical depletion and mild purges. Venesection is generally injurious. The best purge is in the first instance, cream of tartar and sulphur, and afterwards rhubarb and prepared chalk in equal parts, given daily or twice a day, so as to produce two evacuations in the twenty-four hours. It will be proper to continue the latter purgative with occasional intermissions during the principal course of the disease. Blisters behind the ears, to the back of the neck, or to the arm or leg will also be required. When there is much pain or spasms of the orbicular muscles, fomentations of decoction of poppy-heads, or of boiling water, with a little laudanum in it, will usually afford relief, in other cases, local applications in this stage are of little or no service.

1132. After the acute inflammation has been subdued stimulants are proper, and we have found most advantage from the red precipitate ointment, which should be prepared fresh and the precipitate very finely powdered; if the ointment be not well made the practitioner will be often disappointed in its effects. This ointment should be softened by being held near a candle or fire, and a small portion rubbed upon the edges of the eyelids every night. The vinum opii, and a watery solution of opium, have been recommended, but we have never resorted to them, having been always satisfied with the effects of the ointment.

1133. The child should be kept in a large airy apartment, moderately lighted; and only the lightest and most easily digestible food allowed. We cannot speak in terms of reprobation too strong, of bandages to the eyes, or even of shades; they add to the irritation, and instead of relieving the intolerance of light, render it more permanent.

1134. Advantage it is said will sometimes be derived from the tonics, the best of which are the mineral acids. We have never had occasion to resort to them.

1135. The disease is usually obstinate and relapses frequent. Often the patient is nearly well, when from some neglect of the nurse, or imprudence of the child, acute inflammation is re-excited and the whole course of treatment is to be gone through again.

Treatment of Pustular Conjunctivitis.

1136. If we are fortunate enough to see the patient at the com-

mencement of his complaint, we may often, by touching the pustule with the solid nitrate of silver or a strong solution of this substance, and by the administration of a smart purgative, arrest its formation. If however, considerable inflammation exist, topical depletion by leeches, and the administration of purgatives must be premised, and when the inflammation has been subdued by these means, the nitrate of silver may be applied. Advantage will also be derived from the application of a dilute ointment of the nitrate or super-nitrate of mercury, every night to the pustules, as recommended by Mr. Ryall.*

Foreign Bodies in the Eye.

1137. We have mentioned these as among the causes of inflammation of the conjunctiva; and in all cases they should be carefully searched for, and removed; since so long as they continue in the eye will the inflammation be kept up. Not unfrequently the disease continues for months, resisting every remedy, when a careful examination has detected some foreign body, which being removed, the complaint has been promptly relieved.

1138. As some difficulty is often experienced in removing these bodies, the following observations on the subject may be interesting in this place.

1139. Foreign bodies entangled in the eye, occasion great pain, inflammation, and inability to move the lids. They excite an additional secretion of tears; the flow of which frequently removes them. If this fail, the lids should be held open by the fingers, the patient desired to look towards the side opposite to that wherein the extraneous body lies, and the foreign substance may be readily removed with a probe or a small roll of fine linen. If one of the ciliæ fall into the eye, it may be removed in the above manner.

1140. Small round bodies, such as beads, usually lie beneath the upper eyelid, and are got out by laying hold of that eyelid by its ciliæ and margin, drawing it outwards, and then making the patients look down, or while the eyelid is held thus, a small curette is to be introduced under its temporal angle, and carried gently on towards the nose.

1141. If the bodies be very small, or consist of dust or sand, they should be washed out by introducing the pipe of a small syringe beneath the eyelid at its outer angle, and then directing the stream of fluid, which should be tepid water, or milk and water, over the eye, towards the nose.

* Transactions of the King and Queen's College of Physicians in Ireland, Vol. V.

1142. Extraneous particles are sometimes insinuated under the upper lid, and adhere to it. In these cases, it is necessary to turn the inside of the lid outward, and this may be done without difficulty by the following means. The eyelashes should be taken hold of with the forefinger and thumb of the left hand, a slight pressure being at the same time made on the outside of the lid a little above the upper margin of the tarsus, with the end of a probe, (or some similar instrument,) held in the right hand. The part being thus kept down by the instrument, the lid may be gently raised and then turned. In this everted position of the lid, the foreign particle is immediately brought into sight, and, as before directed, may be removed with a probe or roll of fine linen, &c. When the particle is within the lower lid, this may be readily drawn down so as to bring the foreign substance into view, and it may be removed as above directed.

1143. Small bodies, such as particles of metal, the hard wings of insects, &c. are sometimes indented in the conjunctiva; a piece of fine silver wire, beat thin and fixed in a handle, will be found very convenient to remove them with. When splinters of metal get beneath the conjunctiva, they should be seized with a pair of forceps, and cut out with a pair of fine scissors.

1144. Workmen in filing or turning of iron, are liable to have particles from it to fly into their eyes. These particles are often imbedded in the cornea. They should be removed with the point of a cataract needle, or a common thumb lancet, which is to be introduced close to the body, and the point then pressed outwards. If these substances are allowed to remain, suppuration will take place, and they will thus be separated and will drop out. But we should not trust to the operation of nature in these cases, for the continuance of these foreign substances in the eye will generally produce violent inflammation, and add greatly to the patient's sufferings.

1145. Particles of cantharides, pieces of mortar, and unslacked lime should be removed by means of a camel's hair pencil dipped in oil or butter.

SECT. II.—SCLEROTISIS.—INFLAMMATION OF THE SCLEROTICA.

Anatomical Characters of the Sclerotica.

1146. The sclerotica is a strong membrane, composed of firm, white, tendinous fibres, intimately interlaced, and consists of a single lamina, though in the foetus it may be divided into two, these however subsequently coalesce so firmly as not to admit of separation. Externally it is covered with a fine cellular tissue, which connects it with the conjunctiva; its internal surface is

smooth having no connexion with the choroid except by vessels and nerves. The sclerotica does not form a complete sphere, it is deficient at its anterior part, where its place is supplied by a peculiar transparent membrane called the cornea. This was considered by the older anatomists as a continuation of the former membrane, and the name of opaque cornea was given it, and of transparent cornea to the latter. We shall not enter into the discussion waged in relation to this opinion, and which has been carried on with all that warmth usually characteristic of disputes, where the difference is more about words than realities; we will merely remark that the structure, functions, and pathological changes effected by disease in the two, are essentially different, and that therefore in a pathological view, they must be considered as distinct. The optic nerve enters the sclerotica at its posterior part; the posterior ciliary arteries penetrate it around the entrance of the optic nerve; the anterior ciliary arteries and some branches from the vessels of the conjunctiva, pass through foramina, a little behind the cornea; and the veins which form the vassa vorticiosa of the choroid, penetrate it obliquely about its middle. It is of importance to bear in mind this distribution, inasmuch as the appearance of these different sets of vessels in inflammation, enables us to distinguish the tissue affected.

Physiological Characters.

1147. The sclerotica is exceedingly tough and firm, but is capable of considerable extension, as is shown in hydrophthalmia, staphyloma scleroticæ, and fungus hæmatodes, and it appears also to possess contractility, as it collapses when the water in hydrophthalmia is evacuated, and in atrophy of the eye.

Pathological Characters.

1148. In its diseases as well as in its structure, the sclerotica closely resembles the other fibrous membranes, the fibrous capsules, the tendinous sheaths and aponeuroses. It does not take on inflammatory action very readily, though inflammation may be excited in it, and when once produced, is obstinate and attended with great pain. The violence and duration of inflammation, we have already remarked, appears to be, *cæteris paribus*, in direct proportion to the resistance opposed to the distention of the vessels affected by the inflammatory action. This resistance may be owing to the tone of the vessels themselves, the tension of the surrounding parts, or the dense nature of the tissue.*

* Vetch. A Practical Treatise on the Diseases of the Eye, p. 9.

1149. Of the truth of the law we have mentioned, a beautiful illustration is afforded, by the difference in the symptoms and progress of inflammation, according as it attacks the sclerotica or conjunctiva. The latter is capable of great distention in consequence of its lax texture and the looseness of its cellular tissue; little resistance is therefore given to the enlargement of its vessels, they soon become distended with red blood and this is accompanied with little pain, their tone is readily exhausted, and if the exciting cause does not continue to act, they quickly fall into a varicose state, or again contract to their original dimensions.

1150. The sclerotica on the other hand, is, as we have observed, a dense membrane, but little elastic, and offers considerable resistance to the distention of its vessels; this opposition to their rapid and easy dilatation prevents their tone from being speedily exhausted, they remain long in a state of active inflammation, and this is always attended with a high degree of pain and irritation. The inflammation of parts tightly bound down by tendinous fascia, exhibits the same phenomena.

1151. Of the pathological changes which take place in the sclerotica when inflamed, we have no very accurate or precise information. Like the other fibrous membranes, it seldom, perhaps, never suppurates, and coagulable lymph is rarely poured out by its vessels. Its substance sometimes becomes softer and flaccid, at others it assumes a firmer or harder texture, and instances have occurred of its becoming, in part, ossified.* It occasionally becomes thinner by intestinal absorption, and bulges out, forming a staphyloma scleroticæ,† and in some instances it is thickened.

Causes.

1152. Inflammation of the sclerotica is said to be excited by various mechanical and chemical stimuli,‡ such as blows, punctures, the lodgment of extraneous irritants on the surface or imbedded in the conjunctiva, and more especially when applied to the cornea; acrid fumes, excessive application of the eye, or its exposure to great heat or reflected light, the irritation from a granular state of the palpebral conjunctiva, &c. these are, however, we believe, far from being very frequent causes of the disease; on the contrary, primary scleratitis is rarely produced by them. Extension of inflammation from the conjunctiva, which is supposed to be the most common cause of inflammation of the

* Wardrop, *Morbid Anatomy of the Human Eye*, Vol. II. p. 240.

† Travers, *Synopsis of the Diseases of the Eye*, p. 130.

‡ Vetch, *o. c.* p. 23.

sclerotica, is, we suspect, an occurrence by no means frequent. In violent conjunctivitis, especially after it has existed some time, the ciliary vessels which pass over the surface of the sclerotica to the anterior part of the globe, may often be perceived enlarged, and can be seen beneath the conjunctiva, advancing towards the cornea in distinct trunks, seldom anastomosing until they arrive near the cornea, around the margin of which they ramify and anastomose, and form a peculiar red zone. We are persuaded that this has led to the hasty inference that the inflammation has extended to the sclerotica.

1153. Inflammation of the conjunctiva is more frequently propagated to the iris and internal tissues, than to the sclerotica; this last membrane, as we have already remarked, does not readily take on inflammatory action; its vessels, moreover, have less frequent and direct communication with those of the conjunctiva than the vessels of the latter have with those of the internal tissues. Inflammation is not, however, propagated with facility, from the conjunctiva to the iris or choroid. The dense and unyielding nature of the sclerotica, prevents the vessels which pass through it to these membranes from readily enlarging, and hence the anterior ciliaries may be distended without the inflammatory action being transmitted to the internal tissues. In fact, the structure of the sclerotica is such as to enable it to perform the offices for which it was destined in the most perfect manner; dense and firm in its structure, it maintains the globular figure of the ball, preserves and supports its delicate internal tissues, it prevents the vessels passing through it from dilating when acted on by slight or transient irritations, and itself not readily taking on inflammation, remains uninjured, often when in contact with a highly inflamed and suppurating membrane.

1154. Another opinion, which we believe to be equally erroneous, is almost universally entertained; it is, that inflammation or ulceration cannot take place in the cornea, until inflammatory action has first been excited in the sclerotic coat, and that therefore irritation or wounds of the cornea always produce scleritis. Inflammation may however exist in the cornea, and proceed to the effusion of coagulable lymph, and even small ulcers occur without any red vessels being visible either in this coat or in the sclerotic; and when they do present themselves, they appear to belong to a more superficial series than those of the sclerotica. The existence of ulcers, previous to any red vessels being apparent, no doubt led to the opinion entertained by Scarpa, that the inflammation was produced by the ulcers, instead of the latter by the former, as is more generally and correctly believed.

1155. Inflammation of the sclerotica is generally accompanied with inflammation of the fibrous capsules and aponeuroses, com-

monly called rheumatism, and is usually produced either by metastasis of the affection of these parts, or is excited by the same causes that produce inflammation in them, among which cold is the most common. It most frequently occurs in the spring or fall, particularly in the former, and may be often traced to exposure to cold or sudden vicissitudes of temperature.

1156. From the great resemblance between gout and rheumatism, it might be supposed that the former disease would also produce scleratitis, and we have no doubt that such is the case, though we have never met with such an occurrence.

1157. We have stated gonorrhœa to be one of the causes of inflammation of the conjunctiva; it is a very curious fact, if true as stated, that it is also, and perhaps more frequently, a cause of inflammation in the sclerotica. The credit of being the first to notice this circumstance, appears due to Dr. Vetch, whose excellent treatise on the diseases of the eye we have often had occasion to quote.

1158. We are, however, inclined to the belief, and the cases given by Dr. Vetch would fully warrant such a conclusion, that they are rather concomitant affections, both produced by the same cause, than that the scleritis is the consequence of the metastasis of the inflammation of the urethra.* In all the cases narrated by Dr. Vetch, the discharge from the latter membrane, instead of being suppressed when the former became affected, became more violent as the disease progressed in it; the two inflammations advancing *pari passu*, and when the one abated the other decreased also.†

1159. The existence of a catarrhal inflammation of the urethra, as it has been called, is now generally admitted; and its existence is more frequent than is usually supposed. We have repeatedly seen it follow connexion, when there was every reason to believe the woman entirely free from disease; and, in most instances, the patients acknowledged that they had over-exerted their seminal and muscular systems; they were generally aware of having subsequently exposed themselves to cold, and were also sometimes affected with other catarrhal or rheumatic affections. Now, these are the very cases, as is stated by Dr. Vetch, in which the inflammation of the sclerotica occurs. In Dr. Vetch's cases, there was also inflammation of the conjunctiva, with puriform discharge, and this combination is perhaps frequent.

1160. Inflammation of the sclerotica also occurs conjointly with that form of rheumatism which is denominated syphilitic, and is the effect either of a metastasis, or it is generated by the same cause which produces the latter affection.

* Dr. Vetch expresses his suspicions of this being the case, Op. Cit. p. 248.

† Op. Cit. p. 248.

1161. When conjoined with the different affections we have noticed, these are considered as the cause of, and are supposed to impress upon the inflammation of the sclerotica their own distinctive characters. Mr. Wardrop, in his excellent paper on "Rheumatic Ophthalmia,"* remarks, "there are other kinds of inflammation which derive their character, not from the peculiarity of the texture inflamed, but from being produced from specific virus. Hence, the gonorrheal, the syphilitic, the scrofulous, the gouty, and the rheumatic inflammations of the eye; all of which are accompanied with symptoms different from those of simple inflammation of any of the textures which compose that organ."

1162. In what this "*specific virus*" consists, or where or how it is generated, we confess that we have never been able to discover. The attempts, made to indicate the peculiar appearances which each virus is supposed to stamp upon the inflammation it produces, have wholly failed, and the candid must acknowledge that they know of no phenomena by which they can be distinguished. What benefit, then, is to be derived from this separation and multiplication of species—this barren parade of names? The real difference between the inflammations of the eye depends upon the tissue affected, and the modifications of the inflammation of each tissue is dependent upon the diathesis or constitution of the patient.

1163. Cold is the most common cause of inflammation of the sclerotica, and the variations which the disease may display in different individuals results from the dissimilarities of their constitutions or diathesis. If the affection is produced by other causes, as extension of inflammation from contiguous parts, or by mechanical injuries, &c. the same phenomena result. The activity of the causes or the extent to which it is applied, may *cæteris paribus*, influence the violence of the inflammation, but the peculiarities of the patient exercise a marked and evident controul over the effect of all exciting causes.† Thus, the most violent local inflammation may be excited in an individual by a certain cause, and the same cause acting upon another under precisely similar circumstances, and in a similar manner, may excite in him a slight inflammation, or perhaps produce no prejudicial consequences; or, if the cause has acted upon the system generally, disease in another and quite dissimilar tissue.

* Medico-Chirurgical Transactions, Vol. X. p. 2.

† Mr. Wardrop says that "rheumatic ophthalmia," (scleratitis,) "not unfrequently follows the operations for cataract, particularly in patients who have had rheumatism in other parts of the body. Rheumatism is frequently observed to attack a joint or part that has been injured."

Symptoms.

1164. Inflammation of the sclerotica is very variable in its mode of attack, and irregular in its progress. Sometimes it comes on suddenly, is of a very violent character, and attains its height in a short time; at others, it is of a more insidious nature, slow in its progress, involving the internal tissues in its disease, and producing considerable mischief, while the practitioner is thrown off his guard by its indolent and shifting character.

1165. When it assumes an acute form, it usually attacks suddenly, and commences with pain and redness of the eye, accompanied with some degree of pyrexia. The pain, as regards its violence, is exceedingly variable; sometimes it is excruciating. We have been told by patients, "if you do not afford us speedy relief, we shall go crazy;" at others, it is moderate; occasionally it intermits, but generally it is unceasing, though undergoing exacerbations, which are usually most severe at night. The pain is generally seated in the eyeball, but extends itself also to the temple, the brow, the cheek-bone, the teeth, or even the whole head; sometimes it is confined to one side of the head; occasionally there is severe pain in the ear or cavity of the nose; and it is often accompanied with rheumatic pains in other parts of the body.

1166. The sclerotica is more or less reddened, occasioned by the ramifications of minute vessels, which present a peculiar carmine or rose-red colour.* They are equally numerous on its posterior and anterior portion, and run in nearly straight lines to the very verge of the cornea.

1167. There is generally very profuse lachrymation, though occasionally, especially at the commencement of the disease, the secretion of tears is suppressed.

1168. The pupil is often contracted, but preserves its circular form and thin flowing edge; its colour, especially that of its inner circle, is in this case rather lighter than natural; this affection of the iris we believe to be entirely sympathetic.

1169. There is often intolerance of light, but this symptom does not always occur, as is supposed by many writers.

1170. The tongue is frequently furred, and the gastric and biliary organs deranged.

1171. If the disease is very violent, or continues for any great length of time, the inflammation may extend itself to the internal tissues; this is manifested by a red zone round the cornea,

* We believe, however, that inflammation of this membrane, as well as of the cornea, may exist without any red vessels being visible.

by the iris becoming irregular, the pupil filled by portions of coagulable lymph and the other symptoms of iritis; sometimes the choroid, retina, and hyaloid membranes suffer; the vitreous humour becomes more or less opaque, and vision is impaired or even destroyed; if the disease is not arrested, hydrophthalmia may be superadded.* The conjunctiva, particularly that portion which covers the cornea, not unfrequently participates in the inflammation; it loses its transparency; small watery vesicles form, which burst, leaving small ulcers; these seldom extend deep into the cornea, and rarely leave cicatrices behind, but generally little pits or irregularities only, which soon fill up in healthy people;† occasionally, however, the ulcers penetrate the cornea, staphyloma or prolapsus iridis is formed, or the contents of the globe are discharged.

Diagnosis.

1172. Inflammation of the sclerotica may be distinguished from iritis by the following marks:—The blood-vessels are equally numerous over the whole sclerotica, while in iritis they are most numerous on its anterior part, where they anastomose very frequently, and form a peculiar red zone. In the former disease they advance to the very verge of the cornea, while in the latter, they terminate abruptly about a line behind it, leaving a distinct pale circle, which is not seen in the former disease, or but rarely, and then it is not very evident. In the former, too, the redness will on close examination, be found to be produced more by minute ramifications than by large trunks, as is the case in the latter. The iris, though contracted in the former disease, does not lose its circular form, or its thin flowing edge, and become puckered and thickened as in the latter, nor does it exhibit any other change in its appearance, except becoming a little paler. When examined, the eye will be found more steady in the former, and will not roll incessantly as in the latter affection.

1173. Scleratitis may be distinguished from conjunctivitis, by the absence of puriform discharge, and by the eyelids not being affected: by the vessels being of a rose-red or carmine colour, running in nearly straight lines, and being deep-seated; while in the latter disease they are darker, very tortuous and superficial.

* Mr. Wardrop says, that in two instances he “observed a quantity of thick, puriform fluid had formed in the posterior chamber, and burst through the sclerotic coat.”

† A Manual of the Diseases of the Human Eye, &c. by Dr. C. H. Weller. Translated by G. C. Monteith, M. D. Glasgow, 1821. Vol. II. p. 217.

Treatment.

1174. Blood-letting, as may be supposed, is a very important remedy in this complaint. Mr. Wardrop, however, is of opinion that patients affected with rheumatic ophthalmia cannot bear bleeding to a great extent, that the remedy should therefore be employed with moderation, and that the little relief afforded by it in this disease, may be regarded as one of its diagnostic characters.* Our experience has led us to very opposite conclusions: we believe that patients in this complaint bear depletion very well, that it should be employed freely, and that the relief afforded by it is striking; blood-letting in fact, is usually one of the first remedies demanded. The quantity to be drawn must of course be determined by circumstances; we usually detract blood as long as the pain continues violent, unless the pulse should counterindicate it. The most convenient way is to take blood from the arm; opening the temporal artery has no advantage over venesection. Even after as much blood has been taken as can be safely detracted in this way, topical depletion by cups may be practiced with great advantage; it may be used even earlier than this with benefit, but until the activity of the pulse has been reduced by general depletion, topical bleeding has no advantages over general. We prefer cups to leeches, the irritation produced by the latter to the delicate organ of vision, often causing more injury than the depletion does good; we have seen, especially in conjunctivitis, the inflammation exceedingly aggravated by them; if there are any cases in which they are preferable to cups, it is where the violence of the inflammation has abated, or where there is a chronic distention of the vessels; perhaps under these circumstances they unload the vessels more promptly.

Purgatives.

1175. As co-operating to the same end, namely, the lessening the quantity of the circulating fluid, purgatives, particularly the neutral salts, will be found highly useful. When the disease under consideration, is accompanied with disorder of the biliary organs, calomel alone, or combined with rhubarb, and its operation promoted by senna and manna; or the Epsom salt, and calcined magnesia; or the blue pill at night, with magnesia the next morning, should be preferred.

* Medico-Chirurgical Transactions, Vol. X. p. 13.

Diaphoretics.

1176. The nature of the exciting cause would at once suggest the propriety of diaphoretics in this complaint. In the early stages, where the skin is hot and dry, and the pulse not sufficiently reduced, the nitrous powders, (calomel, nitre, and tartar emetic,) see p. 115, will be found most useful. As fulfilling two indications, evacuating the bowels, and determining to the surface, advantage will be derived from the saline mixture, see p. 115, or from the combination of one grain of tartar emetic, to an ounce of the Epsom salt.

1177. Later in the disease, or where it has *ab origine* assumed a less febrile character, and in chronic cases, the Dover's powder given at night, will be found highly useful.

1178. In the latter cases, also, we have found the most striking benefit from the sarsaparilla; it may be given in decoction or extract, the former we usually employ. The corrosive sublimate may be given at the same time in doses of from one-tenth to one-eighth of a grain; the mode in which we administer it, is to dissolve two grains in one drachm of alcohol, and then add eight ounces of distilled water; a table-spoonful of this to be added to a wine-glassful of the decoction of sarsaparilla, and to be taken three or four times a day; the decoction alone to be drunk very freely during the intervals. The tartar emetic may sometimes be substituted for the corrosive sublimate, and in similar doses.

1179. We direct the decoction of sarsaparilla to be made in the following manner; one ounce and a half of the root of sarsaparilla, bruised, two drachms of the bark of the root of sassafras, and we sometimes add two drachms of the wild cherry-tree bark, and occasionally the same quantity of the shavings of guaiacum wood, to be put into a quart of water, and boiled down to three half pints.*

1180. We have used this also, in some exceedingly obstinate cases of chronic rheumatism, affecting the fibrous tissues generally, with the most pleasing results.

1181. A very striking instance of the benefit derived from this remedy, is furnished in the case of Henry Johnson, a coloured man, aged thirty-five, who applied at the Infirmary, March 8, 1824; he informed me that he had been attacked about two years before, in consequence of taking cold, that he had been under the

* The concentrated compound syrup of sarsaparilla, manufactured by Mr. Charles Marshall, of this city, we have found to be an excellent preparation.

care of several physicians, and had taken various remedies, with little or no advantage; he had become exceedingly emaciated, was incapacitated for labour, and had not, he assured me, enjoyed one night's uninterrupted or quiet sleep for eighteen months. There was but slight redness of the sclerotica, the pain not very violent during the day, but severe at night, and accompanied with great restlessness; the pulse was quickened, but with little tenseness, and rather smaller than natural. We purged him for a few days with cremor tartar and sulphur, and then put him upon the decoction of sarsaparilla and corrosive sublimate: in about three weeks he was discharged perfectly cured.

1182. Notwithstanding the fact that the state of the system produced by the action of mercury, predisposes the fibrous membranes to inflammation, it will be found when administered with due caution to be productive of the most beneficial effects in this complaint; its usefulness is however less striking than in iritis, but its administration is often not less indispensable. One of the most remarkable characters of this complaint, is its strong tendency to relapse; we have found this considerably controlled by the proper use of the remedy under consideration. Its profuse and unguarded exhibition aggravates the violence, and hastens the progress of the disease; we, however, give it only with a view to its alterative effect, or at most, till the mouth is slightly touched, and then immediately discontinue it, and allow the system to recover; when, if required, it may be again given in the same manner.

1183. The blue pill in doses of one grain, three or four times a day, the Plummer's pills, or the hydr. cum creta, in doses of from five to ten grains, two or three times a day, or the corrosive sublimate, as before directed, are the best forms in which it can be administered. As auxiliaries, and to allay irritation, the Dover's powder, the decoction of sarsaparilla, or the cicuta, may be often used with advantage.

Tonics.

1184. The mineral acids have been recommended. We have never tried them in this complaint, but from the beneficial effects we had derived from them in some analogous diseases, we should expect that they would be useful. Mr. Wardrop prefers the sulphuric; if without any direct experience in the case, we might be allowed to differ from so high an authority, we would say that we should expect more from the nitric or nitro-muriatic acids.

1185. Mr. Wardrop highly recommends the cinchona; "it seems," he says, "to possess as specific effect in this disease as

in ague;" we have not seen any cases in which it appeared admissible. It is well known that intermittent fever sometimes attacks the eye; we have seen a few instances of it, in one case it appeared in the form of sclerotitis, accompanied with considerable redness of the sclerotica, a febrile paroxysm every morning at ten or twelve o'clock, at which period the pain was exceedingly violent. In this case there was too much febrile excitement constantly present, to admit of the use of bark, but in similar cases, attended with a complete intermission, the quinine would no doubt be useful.

1186. We found great advantage in the above case, and in some others exhibiting a paroxysmal type, from Fowler's solution; it may be given in the usual dose, and should be combined with a little laudanum and compound spirit of lavender; in this form it does not disagree with the stomach.

1187. My friend, Dr. Thomas Harris, of the United States' navy, informs me that at the suggestion of Dr. Physick, he used in one case, the tincture of guaiacum with decided advantage, and the same patient has on several subsequent occasions received prompt relief from the remedy; he however prefers the guaiacum with nitre and antimony, which he has often used with advantage.

Local Applications.

1188. We have derived the most striking benefits in this disease from fomentations of a decoction of poppy heads; they are used in the early stages of the disease with most advantage, alleviating the pain in the eye and brow. A piece of flannel should be immersed in the hot decoction, wrung as dry as possible, and then applied over the eye and brow; when it becomes cool, it should be again immersed in the decoction and reapplied.

1189. When all febrile symptoms are subdued, Mr. Wardrop says that he has found the vinous tincture of opium, applied within the eyelids twice a day, decidedly beneficial; we cannot speak of its utility from our own experience.

1190. Blisters applied behind the ears, or to the back of the neck, will often be found beneficial in the latter stages of the complaint; when applied earlier, while considerable febrile excitement exists, they will generally aggravate the inflammation.

1191. Mr. Wardrop has strongly recommended* the evacuation of the aqueous humour, particularly in those cases where proper remedies have not been employed at an earlier period of the disease, where there is much pain in the brow or any other

* Medico-Chirurgical Transactions, Vol. X. p. 11.

part of the head, where the cornea has become dim and clouded, and where vision is impaired. The effects of the operation in these cases, is, he says, instantaneous, the pain in the head is removed and seldom returns, and the transparency of the cornea is restored. After the operation, he thinks no applications necessary, except fomentations to the parts around the eye. We are not able to speak from experience of the use of this remedy, and should not have expected any permanent or perhaps great benefits from it, but it would be wrong to object to its use purely on theoretical grounds; if it produces only half the good effects ascribed to it by Mr. Wardrop, it is a valuable remedy, and it comes recommended to us by such high authority, that it would be justifiable to try it.

Regimen.

1192. The remedies noticed, will be of but little avail, unless the patient is put upon a properly regulated diet. No part of the treatment requires more the attention of the physician than this, and it is truly surprising how little it is generally attended to, the patient being permitted to take food which counteracts and renders abortive every thing that is done for him.

1193. In the early stages, when the disease is attended with much pain and high fever, rigid abstinence must be enforced. Toast and water, apple water, currant jelly and water, tamarind water, lemonade or rice water, in which tartar emetic is dissolved, should be the only nourishment allowed—the latter we have found very useful, keeping the bowels open, especially if a purgative has been premised, and also acting as a mild diaphoretic, and keeping down arterial action. Two grains of tartar emetic may be dissolved in a quart of rice water, and the patient allowed to drink of it freely.

1194. When the activity of the pulse has been reduced, the patient may be permitted to have a little soft boiled rice, sago, and the farinaceous articles of food generally, in moderate quantities.

1195. As the disease disappears, the quantity of these articles should be increased first, and then the patient may gradually return to the use of animal food, beginning with weak broths, and avoiding all seasoning except a little salt; as long, however, as the acute stage lasts, animal food, in any shape, is inadmissible.

1196. It is more difficult to give special direction for regimen in chronic cases, but it is not less necessary that it should be particularly attended to. The patient must avoid all stimulating substances, and confine himself to light and easily digestible

food, taken in small quantities. Physicians generally think they have done enough, when they restrict their patients to certain articles; but, when bread and water only is allowed, injury is often produced by eating too much of the former.

1197. Such are the remedies usually employed in the treatment of inflammation of the sclerotica. It is impossible to give particular directions for their application in all cases; much must be trusted to the judgment of the practitioner, and that tact which an attentive observer acquires from experience. The violence of the disease, the peculiar constitution of the individual, and many other circumstances, must determine the extent to which remedies should be employed, and decide the practitioner in the choice of them.

1198. It may be stated generally, that where there is violent pain and great febrile excitement, they should be reduced by general blood-letting, saline purgatives, fomentations to the eyes, small doses of tartar emetic, the saline diaphoretics, rigid diet, &c.; topical depletion is then to be employed, blisters behind the ears, sedatives, diaphoretics, &c. After the acute stage of the disease has been subdued, or where it is attended with little febrile excitement at the commencement, the practitioner should resort to mercury in some form, with sedatives, sarsaparilla, &c.; where it puts on an intermittent form, to the Fowler's solution; and when attended with gastric disorder, or derangement of the biliary apparatus, to mercurial purgatives or antimonial emetics.

1199. Treated in the way we have recommended, the disease under consideration, may, in almost all cases, be conducted to a fortunate termination; but it will always be found to have a strong tendency to relapse, and this must be guarded against, by avoiding all exposure to cold, or other exciting causes, and a strict adherence to a properly regulated diet.

SECT. III.—CORNEITIS.—INFLAMMATION OF THE CORNEA.

Anatomical Structure, and Physiological Characters.

1200. The cornea consists of three distinct tissues, viz:—an external covering which is a continuation of the conjunctiva; its proper substance; and an internal lining membrane.

1201. The conjunctival coat of the cornea is a mucous membrane, extremely delicate, transparent, colourless, devoid of epithelium, and, in a healthy state at least, exhibits no villi or follicles. It is abundantly supplied with blood-vessels, and is united to the subjacent cornea by cellular tissue, which is too short to be demonstrated. From no villi or follicles being perceptible

in it, and its acute inflammation usually terminating in effusion of lymph, as in serous tissues, it is regarded by some pathologists as belonging to this class, while others consider it a sero-mucous membrane. It certainly is more closely connected with its subjacent tissue than any other of its class, and suffers considerable modification of character; but we are inclined to consider it still as essentially a mucous membrane, lymph never being poured out from its free surface as in serous tissues, but always in its substance, or into the subjacent cellular tissue.*

1202. The second coat, or the proper substance of the cornea is a transparent, insensible, elastic, fibro-cartilaginous tissue, and consists of two portions. The external portion is composed of a number of concentric or parallel laminae, connected by a cellular tissue, the cells of which are filled with an unctuous fluid, having all the characters of the imperfectly coagulated, diaphanous mucus, which occurs in the centre of the inter-vertebral fibro-cartilages. This cellular tissue is abundantly supplied with absorbents. By boiling the cornea, we obtain gelatine similar to that obtained from the other fibro-cartilages. M. Gendrin,† in his admirable work, informs us, that when we tear the cornea after macerating it for a long time in a mineral acid, it ruptures parallel to its circumference, as if by the separation of concentric fibres; it is, however, impossible to render these fibres visible, but M. G. thinks that the above experiments, and several pathological considerations prove their existence. The internal portion is very dense, and is united to the other by cellular tissue. It is very important to bear in mind these two divisions, as the pathological phenomena which they exhibit are somewhat different, and in consequence of the greater density of the internal lamina, it is much more difficult to penetrate with cutting instruments than the exterior ones, and in operating for cataract by extraction, the knife is apt to be turned by the former portion, and the instrument, instead of passing through the anterior chamber is inserted between the two portions of the cornea we have described. The blood-vessels of this coat are derived from the sclerotica, and in a healthy state, like the vessels of the other parts of the cornea, they carry a colourless fluid.

1203. The third tissue is an extremely delicate serous membrane, which lines the internal surface of the cornea, and is intimately attached to it. The existence of this membrane has been denied by some anatomists, and it must be confessed that no one

* At least we have never seen filaments of lymph formed in its free surface as occurs in serous membranes, and if it ever happen, it cannot be of more frequent occurrence than in other mucous membranes, as in the laryngeal mucous membrane in croup, &c.

† *Histoire Anatomique des Inflammations*, Vol. I. p. 331.

has succeeded in demonstrating it by dissection,* but its existence is rendered highly probable from analogy, and is we think, proved by several pathological phenomena which we shall indicate hereafter.

§ I. INFLAMMATION OF THE MUCOUS COVERING MEMBRANE.

1. *Acute Inflammation.*

1204. The first change produced in the mucous membrane of the cornea by acute inflammation, is a slight loss of transparency, arising from a too great fulness of its serous vessels. This being the effect of simple congestion, is immediately removed on the restoration of the circulation. If the irritation, however, be continued, the colourless vessels become so distended as to admit red blood, and they can then be readily distinguished. Around these vessels there is an effusion of coagulable lymph, producing at first a slight cloudiness; but as the inflammation advances more lymph is poured out, the conjunctiva becomes of considerable thickness, opaque, loses its smoothness and polish, and finally the vessels become varicose, transmit red blood, the lymph is organized, and the natural appearance of the conjunctiva is entirely destroyed.

1205. The inflammation may be arrested at various periods of its progress, the absorbents take up the effused lymph, and the transparency of the conjunctiva be entirely restored. The degree of opacity removed by these vessels is often surprising, especially in children. We have seen in infants in whom the whole conjunctiva of the cornea was thickened and opaque, in consequence of puriform inflammation immediately after birth, the lymph entirely absorbed, and the transparency of the cornea perfectly restored.

Treatment.

1206. The indications of cure are first to arrest the inflammation, and then to promote absorption. The first is to be accomplished by general and local depletion, revulsives, and diet. In healthy individuals, general depletion is to be preferred to local; when the patient will not, however, bear the former, or after it has been employed to sufficient extent, topical depletion may be had recourse to, and for this purpose we usually prefer cups,

* Charles Bell, however, says in his *Anatomy*, Vol. III. p. 249, London, 1803, "after maceration, I have found raised in the fluid a very delicate and transparent membrane from the internal surface of the cornea."

which may be applied to the temples or behind the ears and back of the neck; the former situation is usually the best: or leeches may be placed behind the ears, but not to the eyelids as usually recommended; we have never seen them applied there in the early stages of acute inflammation of the conjunctiva, that they did not aggravate the mischief.

1207. The bowels are to be kept open by saline purgatives, and the most rigid diet enjoined.

1208. After the violence of the inflammation has been subdued by these measures, blisters will be found serviceable; earlier than this, however, they invariably do mischief. They may be applied behind the ears, to the back of the neck, to the temples, or to the arms or legs; the two first situations are usually to be preferred; after the inflammation has been entirely subdued, and we wish to institute a permanent drain, they may be applied to the arms or the legs, especially the former, with advantage. A seton will answer this last purpose exceedingly well. As revulsives in the earlier stages, pediluvia will be found useful.

1209. When the inflammation is dissipated, stimulants must be applied to the cornea to promote the absorption of the effused lymph; for this purpose an immense number of remedies have been recommended; the best are the nitrate of silver, the red precipitate ointment, the corrosive sublimate, and sulphate of copper. I prefer of these the nitrate of silver, which should be employed in solution, one to four grains to the ounce of *distilled* water, dropped into the eye several times a day. This solution soon decomposes unless kept from the air and light; as soon, therefore, as it assumes a reddish colour, and small particles are seen floating in it when shaken, fresh should be prepared. The corrosive sublimate is used in solution, one or two grains to the ounce of distilled water. Much difficulty is often experienced in applying these solutions to the eye; it may be accomplished with great ease by means of a small quill or glass tube about two inches long, which should be introduced half way into the solution, and the upper orifice then closed with a finger; the eyelids are to be separated, and the lower end of the quill or tube placed near the cornea; the finger being now removed from the orifice, the fluid will flow out. Great care should be taken not to employ these remedies too early, that too much action be not excited by them, and that it be only temporary; otherwise, instead of absorption being promoted, there will be an increased deposition of lymph.

1210. Dupuytren, we learn, is extremely successful in the treatment of opacities of the cornea. He removes the inflammation by the usual remedies, and then orders to be blown into the

eye equal parts of prepared tutty, sugar candy, and calomel mixed together and reduced to an impalpable powder. This he continues for several weeks, and it is said he seldom fails to effect a cure. If the opacity is very old and large, he introduces a seton into the back of the neck, and the powder is blown into the eye some minutes at a time.

1211. In several cases of extensive opacities of the corneal conjunctiva, of long standing, we have employed with great advantage finely powdered loaf-sugar and calomel, applied to the spot with a camel's hair brush.

1212. Local stimulants will not, however, always succeed in effecting absorption; when this is the case, mercury should be resorted to, but not to the extent of producing salivation. We usually prefer the calomel in combination with tartrate of antimony and nitre; the proportion of nitre should be larger than in the common nitrous powders. Few cases, except in very depraved constitutions, will resist the judicious employment of this combination, with a solution of nitrate of silver, to the eye, or the calomel and loaf-sugar, together with a drain established by a seton in the neck, or a perpetual blister to the arms. It is, however, often necessary to continue these remedies for a considerable time.

2. *Chronic Inflammation.*

1213. In chronic inflammation the blood-vessels soon become varicose, convey red blood, and anastomose. The effusion of lymph is usually more general than in acute inflammation, frequently producing a general opacity and thickening of the conjunctiva; this membrane seems to lose its close attachment to its subjacent tissue, and the cornea frequently "resembles in appearance the green colour which is presented by the fracture of common gun-flint; sufficiently diaphanous to admit the perception of light, yet too opaque to render external objects visible to the patient, excepting by their shadows, rendering it impossible to ascertain the colour of the iris, or distinguish the limits of the pupil."*

Treatment.

1214. In the treatment of this inflammation, general blood-letting will be found of little service; topical depletion is much more useful. The solution of nitrate of silver should early be resorted to, and afterwards the solution of corrosive sublimate

* Vetch. A Practical Treatise on the Diseases of the Eye, p. 68.

or the red precipitate ointment may be substituted, if the first does not succeed in effecting a cure. Blisters are useful, and in some cases we have seen them applied with advantage over the eyelids. The varicose vessels should be divided with a knife, or elevated with a small hook and a portion cut out with scissors.

1215. This inflammation is often excited and kept up by a granular state of the eyelids, in others by the eversion of the lids, in such cases we need not expect a cure until the cause producing it is removed.

1216. *Preternatural Growths produced by Chronic Inflammation.*—Circumscribed tumours, of a dense and firm texture, are sometimes formed upon the conjunctiva of the cornea, and attain a considerable magnitude, but such cases are rare. Mr. Travers says that he has “excised the anterior hemisphere of the eyeball in an elderly lady, in whom the cornea was concealed by a tumour of a dark purple colour, protruding to such an extent between the eyelids, as to occasion great inconvenience and deformity. It had the appearance of being disposed in lobes, somewhat resembling a bunch of currants of unequal size. On dissection, the cornea and sclerotica proved to be entire, and the morbid growth lying upon and adhering to the corneal, and a small portion of the sclerotic surface, had acquired the lobulated appearance, as if by degeneration of the covering conjunctiva; for delicate white bands, the only vestiges of this membrane, were seen intersecting the lobules at irregular distances, in the form of sseptæ. The substance, on section, was firm, of a dark colour, here and there mottled with white, and measured a quarter of an inch in thickness, from the external surface of the cornea.”*

3. *Vesicular Inflammation.*

1217. In certain cases of mild inflammation, the serous vessels pour out a fluid either in the substance of the conjunctiva, or in its subjacent cellular tissue. This secretion is very circumscribed, and forms small diaphanous vesicles, which usually burst, discharge their contents, and leave an ulcer.† This may extend to the proper coat of the cornea, or the breach may be repaired. This reparation may be effected by the lymphatic vessels, and without any red vessels being visible; most frequently, however, blood-vessels may be seen running to the ulcer; these deposit a yellowish lymph, which is sometimes removed by the absorbents, at others remains, forming an opaque cicatrix.

* Synopsis of the Diseases of the Eye, p. 102, ed. 3d. London, 1824.

† This affection has been described by Gendrin. Op. cit. Vol. I. p. 523.

Treatment.

1218. This inflammation is to be treated by topical depletion, revulsives, and astringent washes, the best of which are the nitrate of silver and sulphate of copper.

4. Pustular Inflammation.

1219. Pustules are not unfrequently formed in the conjunctiva of the cornea, and as in other mucous membranes, they are the result of inflammation of mucous follicles, we are inclined to consider them here as the consequence of follicular inflammation, though follicles have not been as yet demonstrated in this part. It may be supposed by some that these pustules are mere abscesses; we cannot, however, consider them as such, since they do not exhibit the common appearances, nor follow the usual course of abscesses, and they often occur as concomitants of unquestionably follicular inflammations, as small-pox, aphthæ, &c. These pustules are usually situated near the margin of the cornea. At the very commencement of this inflammation, minute fasciculi of vessels presenting a triangular form, may be perceived running upon the cornea, and at the point of each plexus a pustule forms. At first, this pustule generally appears like a dusky, yellow, or reddish spot, a little elevated above the surface of the cornea, and in a short time it becomes a conical tumour. Coagulable lymph is secreted around the fasciculi of vessels, and the cornea in the vicinity of the pustule becomes more or less dense. The vessels always run in fasciculi, pointing towards the pustule, and the redness is never diffused, as in common, acute, or chronic inflammation. This disease is attended from the commencement with pain, usually very acute, and lachrymation; these subside as the disease advances. If the inflammation be not now arrested, a straw-coloured purulent fluid is secreted in the pustule; its apex ulcerates; it discharges its contents, and an ulcer is left, the edges of which are opaque. The ulceration may extend to the cornea, or restoration take place; this latter is effected by the effusion of coagulable lymph, which becomes organized, and the excess is either absorbed, or an opaque cicatrix is left.

1220. The inflammation in this disease is very apt to return on any slight irritation. In some cases where it returns frequently, the pustule seldom ulcerates, but disappears gradually, after having remained a few days.

1221. This disease sometimes occurs simultaneously with, and appears to be connected with small-pox, aphthæ, and similar

affections; at others, it appears to be produced by some circumscribed local irritation, or to be dependent upon a peculiar diathesis or state of the constitution. It usually occurs in children, and sometimes spreads through schools and large families; it is met with, however, in persons of all ages. These pustules bear some analogy to the aphthæ observed in the cavity of the mouth, on the tongue, lips, and on the internal surface of the intestinal canal; and Professor Himly says, that at a time when aphthæ of the throat were very frequent at Brunswick, he also found many small vesicles beginning with an inflammation of the sclerotic coat; and also sometimes, but more rarely of the cornea. Once he saw a whole family affected with this disease, one after another. "It was," he observes, "a true catarrhal affection, and in some cases these vesicles disappear by diaphoretic medicines, in some by blisters, camphor, and antimony, without any local application, except mucilaginous ones. I think that it is just the same disease as aphthæ of the intestinal canal, of the cornea, of the glans penis, and other fine continuations of the external skin. Those on the cornea become worse if they are opened, and if they open themselves and form ulcers, they generally dry up by means of borax and white vitriol, but if they are neglected, they cause sometimes considerable ulcers which are very obstinate and hurtful to the cornea."*

Treatment.

1222. In the treatment of this inflammation, general blood-letting is not often demanded; topical depletion, however, is almost always useful, and this may be effected either by cups or leeches. The bowels should be kept open, and for this purpose we prefer in the first instance calomel, and then a mixture of pulv. rhei and creta ppt. Blisters are also useful, and they should be applied to the back of the neck, behind the ears, or to the arm, and kept open. If the pain be very violent, fomentations will sometimes afford considerable relief. After the inflammation is reduced by these measures, the astringent collyria should be employed; the best is the solution of nitrate of silver. In the very onset of the disease it is also useful, and should the patient be seen early enough, by touching the plexus of vessels with the

* We have made this quotation, for which we are indebted to Wardrop's valuable essays on the morbid anatomy of the human eye, never having seen the original, with some hesitation, as the disease is termed vesicular. Whether the affection consisted of true pustules, or really vesicles, or whether an error has been committed by the author or the translator, we are unable to determine: but as the swellings are said to resemble aphthæ, which are true pustules, i. e. inflammations of cryptæ, we are inclined to believe that there is a mistake somewhere, and that the disease consisted of pustules.

argent. nit. and administering at the same time a smart purgative, the disease may occasionally be arrested. In the latter stages of this disease the vinum opii has been strongly recommended. We cannot say any thing respecting its value from our own observation, as we have little experience with the remedy in ophthalmic inflammation. In a few instances in which we employed it, we derived little or no advantage from it, and therefore have not persevered in its use, but it has been so highly extolled by respectable writers, that its utility in some cases can scarcely be doubted. When the pustule is evidently filled with pus, and there is no prospect of its being absorbed, it is better to open it at once carefully with a sharp cataract needle. The ulcer that is left may be cured, and the absorption of the lymph promoted by the judicious use of the nitrate of silver and revulsives.

5. *Ulcerative Inflammation.*

1223. The conjunctiva bears the same relation to the cornea that the synovial membrane does to cartilage, and periosteum to bone, and like these membranes, it is much less disposed to ulcerate than the part it covers. Ulcers, however, do form in it, and they are described by M. Gendrin,* as commencing always by the formation of a very small tubercle, at first red, very little prominent, and soon of a cindry white. This small tubercle, which is produced by inflammatory effusion into the conjunctiva, has been often mistaken for abscess beneath or in the thickness of the conjunctiva. As soon as the ulceration has destroyed this tumour, we see a solution of continuity having elevated edges, livid red, irregular, and at the base gray and cindry. It remains in this state during the existence of the inflammation, but when cicatrization is about commencing, the edges of the ulcer become less prominent, the redness less livid, the base of the ulcer assumes a reddish appearance, the size of the ulcer diminishes, and if it has not extended beyond the thickness of the cornea, it appears like a slight excoriation. This may be the usual appearance and progress of ulcers of the cornea, but they certainly do not always commence in this manner. They often succeed vesicular and pustular inflammation; and we have seen them apparently produced by a real ulcerative absorption, the cornea exhibiting no apparent loss of transparency, and no coloured vessels or lymph being visible.

1224. Eliza Davis, ætat. thirty, servant, applied at the Pennsylvania Eye Infirmary, January 30th, 1824. She had slight inflammation of the conjunctiva of one eye, and an indistinctness

of vision, for which there was no visible cause. By the loss of a little blood, purging, and low diet, the inflammation abated in a few days, but the indistinctness of vision increased. At this period the cornea, though transparent, did not present a perfectly natural appearance, and on carefully examining it in certain positions, a very minute, irregular depression was perceived by the irregular reflexion of the light. On examination with a microscope, at least fifty ulcers were seen on the cornea, all so minute that they could not be perceived by the naked eye; the one at first seen was evidently formed by the union of three or four. These ulcers remained for several weeks, but ultimately entirely healed. At no period was there any effused lymph or red vessels to be seen on the corneal conjunctiva.

1225. Mr. Ryall is, we believe, the only writer who has noticed these minute ulcers.*

Treatment.

1226. The first object to be attained in the treatment is the reduction of the inflammation, and next to promote cicatrization. The first is to be accomplished by the usual antiphlogistic measures, and for the second, the best remedy is the solution of nitrate of silver. Mr. Ryall says† that he has “not unfrequently known patients of weakly, strumous habits to have been condemned to long confinement in darkened apartments, to a strict antiphlogistic regimen, and even to the influence of mercury, whose miseries might have been in a great measure curtailed, had the precise nature of their complaint been timely discovered, and the nitrate of silver applied.” These measures will usually effect a cure; should they fail, and the ulceration involve the proper lamina of the cornea, we shall point out the treatment when we come to consider the ulcerative inflammation of this part.

§ II. INFLAMMATION OF THE PROPER TISSUE OF THE CORNEA.

1. Acute Inflammation.

1227. The first step of acute inflammation is evinced by engorgement of the vessels of the part, and in the cornea it becomes visible by a slight haziness or loss of transparency. At this stage resolution may take place by the contraction of the

* Transactions of the Association of Fellows and Licentiates of the King and Queen's College of Physicians in Ireland, Vol. V. p. 2.

† Op. Cit. p. 3.

lymphatic vessels to their original diameters; but if the disease advances, the vessels become distended, and first admit a dense coagulable lymph, next the red globules of the blood, and deep-seated vessels may then be seen in the substances of the cornea, always running from the circumference towards the centre of the part. These vessels are usually most visible at the junction of the sclerotic coat with the cornea, and on close observation they may be seen forming at this part a beautiful red zone of rectilinear vessels, which zone is very different from that occurring in iritis; the latter being formed by anastomosing vessels, and situated a short distance from the cornea, leaving a whitish zone within it. The inflammation may terminate in effusion of coagulable lymph, or a puriform lymph, usually succeeded by ulceration, or the action may be so violent as to produce gangrene or sloughing; in some few cases blood has been effused between the laminæ of the cornea. The lymph is generally deposited in the cellular tissue connecting the laminæ; and the extent of this effusion varies, sometimes being confined to a small space, at others occupying the whole of the cornea. If the inflammation has not been very violent, or is early arrested, the lymph may be removed by the absorbents, and the transparency of the cornea in great part, or even entirely restored; sometimes, however, the lymph becomes organized, and red vessels may be seen ramifying through it. If the inflammation is severe, and continues for any length of time, considerable disorganization is produced, the cornea swells, its vessels become varicose, and transmit red blood; its laminæ are separated, coagulable lymph is effused in their substance and between their laminæ, and the whole cornea becomes thickened, opaque, and spongy. The pain that attends this disease is very various, and seems to depend upon the extent to which the sclerotica and the internal tissues are involved.

1228. Inflammation of the cornea may be produced by extension from the sclerotica or conjunctiva, and by the usual causes of inflammation elsewhere. Persons with a scrofulous constitution are peculiarly liable to it, and in them, it is very difficult of cure, the disease often assuming a chronic character, and relapses taking place on the slightest exposure to the exciting causes.

Treatment.

1229. In the management of acute inflammation of the cornea, the importance of the organ affected, and the rapidity with which disorganization may take place, must be kept constantly in mind. The treatment must of course be regulated by the violence of the

inflammation and the habit of the patient, but prompt and efficient measures should always be adopted. In the commencement, general blood-letting is almost always demanded, and for this purpose opening the temporal artery has been highly recommended by some writers. We are not aware of any advantages that it possesses over venesection, and a bandage around the head being usually necessary to arrest the flow of blood, the circulation of the head is impeded, and its vessels become engorged; and even if no bandage be required, the wound generally proves a very injurious source of irritation; venesection should therefore always be preferred where it can be accomplished. After general depletion has been carried as far as the violence of the disease may demand, or the constitution of the patient justify, topical depletion will generally be required. It is impossible to lay down any very accurate rules by which it may be known, at what period, and under what circumstances, topical is to be substituted for general depletion. In inflammation of organs not essential to life, occurring in healthy individuals, and where none of the vital organs are implicated, general depletion may be pushed to a greater extent than is usually supposed, and with much advantage; and the usual error we suspect is in not depleting sufficiently. But in diseases of vital organs, or where these have become deeply implicated, and where the inflammation has been of long continuance, and become established, and especially in broken down or depraved constitutions—topical must be early substituted for general depletion, and often entirely depended on; as the latter, in these cases, debilitate the healthy organs more than it relieves the affected ones, and the restorative powers are thus weakened or destroyed. When a good deal of pain attends the disease, much relief is often afforded by fomentations, especially by means of flannel wrung out of a hot decoction of poppy-heads; but these applications should not be too long continued, and warm poultices should be invariably avoided as eminently injurious, promoting suppuration and disorganization of the cornea.

1230. Purgatives and revulsives will be found highly useful; their employment must be regulated by the rules laid down in inflammation of the conjunctiva. (See pp. 335 and 336.) A proper diet must also be enjoined. (See p. 355.)

1231. The inflammation being reduced by the above measures, if opacity remain from the effusion of lymph, its absorption must be promoted by keeping down the inflammatory action by occasional local depletion, by low diet, by stimulating applications, such as the solutions of nitrate of silver and corrosive sublimate, red precipitate ointment, &c. When other means fail,

mercury urged to salivation in combination with the above measures, will sometimes succeed; but we prefer the combination already noticed of calomel, nitre, and tartar emetic, and think we have derived most advantage from its alterative action than when urged to salivation. In scrofulous persons salivation is much to be deprecated; we have seen such kept under the long-continued influence of mercury for opacities of the cornea, to the great injury of their constitutions and the evident aggravation of the disease, relapses of inflammation occurring on every variation of temperature, from the increased susceptibilities thus created, and the vessels of the cornea becoming, from the frequent attacks of disease, permanently enlarged. In such cases the alterative effect attained by the use of the combination just noticed, will often be found useful, but should be administered with caution, and frequently intermitted for fear of salivation, and during these intervals the bowels should be kept free by the daily administration of rhubarb and prepared chalk.

1232. When the varicose vessels belong to the conjunctiva, it has been recommended to take up a fold of this membrane, and excise a small portion so as to divide them, or when they are somewhat deeper to divide them with a knife, but our own experience would not lead us to say much in favour of this practice.

1233. By the judicious employment of the means indicated, very extensive opacities of the cornea may be removed; indeed, unless the lymph has become organized, great benefit, or even a cure is mostly effected, especially in young patients; even where the lymph has become in a degree organized, and varicose vessels are seen running to the part, something is often gained. When both corneæ are affected, and only a small portion transparent, if this be not over the natural pupil, an artificial one may be made opposite the transparent spot, and a useful degree of vision restored.

2. *Chronic Inflammation.*

1234. This produces a slow change in the texture of the cornea, rendering it opaque, indurated, condensed, and more easily torn than in health. Such disorganization is not produced in the cornea, without the inflammation extending to the conjunctiva, and often to the sclerotica; lymph is deposited in both these tunics, especially the former, which loses its transparency, and the blue colour of the latter is destroyed. The globe of the eye appears as if covered with a fibrous fascia, the fibres of which converge towards the centre of the cornea, and presents a yel-

low, pearly appearance, not unaptly compared to that of the inside of an oyster shell, over which varicose vessels sometimes ramify.

1235. These cases are usually beyond the resources of art, the effusion of lymph having usually been so profuse as to agglutinate the cells of the interlamellar tissue, and the absorbents are no longer capable of effecting its removal.

1236. A deposit of lymph, formed perhaps by a slow, chronic inflammation, is often seen in old men; the lymph is deposited in a regular circle around the cornea, forming what has been denominated the arcus senilis. Mr. Wardrop* says that he has seen it at all periods of life, even in very young subjects.

3. *Suppurative Inflammation.*

1237. Inflammation of the cornea rarely, if ever, terminates by the effusion of true pus; but instead of this fluid, a tenacious, yellowish substance, partaking more of the nature and properties of lymph, is secreted in the cellular tissue connecting the laminæ of the cornea. This termination is like abscess in common cellular tissue. When the deposit is small, it is frequently removed by the absorbents, and often without any vestige being left. Sometimes coagulable lymph is effused around the deposit, or in its place, and a permanent cloudiness is left. When the deposit of pus is large, the superficial laminæ are usually removed by absorption, the contents of the abscess are thrown off in the same manner as sloughs, and an ulcer is left. This may heal by the usual process, and the transparency of the cornea be restored, even when a considerable portion of it has been affected. Mr. Vetch† says that he has seen the cornea not only recover its transparency after two-thirds of its extent had been destroyed in this way, but that he has frequently procured a transparent cicatrization after the second, and even third attack of inflammation, followed by ulcer and slough.

Treatment.

1238. The treatment must be commenced by reducing the inflammation, which is to be accomplished by the measures already noticed; principally topical depletion and purgatives, and blisters; the latter should early be resorted to; by these means the effusion will generally be absorbed. When the abscess is very superficial, and the external laminæ are bulged out, it is well to open it with a cataract needle, and evacuate its contents by en-

* Op. Cit. Vol. I.

† Op. Cit.

tangling them with the point of the needle, and drawing them out. In abscess deeply seated, no advantage is obtained from this practice. When the effusion is very large, and there is a disposition to slough, as usually occurs in depraved constitutions, the system must be supported by tonics, such as the nitric acid, bark, &c. and a nourishing diet.

4. *Ulcerative Inflammation.*

1239. The cornea, like the other fibro-cartilages, very frequently ulcerates. The conjunctiva bears the same relation to the cornea, as we have already observed, that periosteum does to bone, and perichondrium to cartilage; and when the former is removed, either by abrasion, the rupture of pustules, or destroyed by chemical agents, a portion of the cornea being exposed, sometimes dies, and is removed by absorption, leaving an ulcer. Ulcers are also produced by mechanical injuries; but wounds of the cornea often heal without ulceration, the healing process being at once established. The shape and appearance of ulcers are very various, sometimes appearing like little excavations, with little or no surrounding opacity; most generally, however, lymph is effused around them, and at their base. Mr. Vetch* says that they have a disposition rather to spread than to deepen; while Mr. Wardrop† asserts that they are more apt to increase in depth than in breadth. The fact seems to us to be, that when the sides of the ulcer are not limited by coagulable lymph, they spread more readily than they penetrate, but when lymph is deposited on the sides, it seems to arrest their spreading, and they deepen most readily until they arrive at the inner lamina of the cornea, which being less disposed to ulcerate than the others, the progress of the ulcer is now for a time arrested, but if the disposition to disease is not removed, this check is but temporary, and the ulceration may spread or deepen, or both, the internal membrane not affording any effectual barrier to the ulcerative process.

1240. As soon as the internal lamina is sufficiently thin and weakened by the ulceration, which, when the ulcer is broad, soon happens, it is pushed forwards by the pressure of the aqueous humour, or when the ulcer is narrow, this lamina may ulcerate through, and the serous internal membrane is protruded in the form of a transparent vesicle, which soon ruptures, and the aqueous humour is discharged. If the ulcer be within the limits of the iris, this part floats forward, and partially or completely closes the rupture; coagulable lymph is secreted, uniting the iris with

* Op. Cit.

† Op. Cit. Vol. I.

the edge of the ulcer, and closing the opening. The aqueous humour, however, being rapidly regenerated, before the breach is repaired or sufficiently strengthened to resist pressure, a rupture again takes place, and the humour is evacuated; and this is frequently repeated before a sufficient quantity of lymph is effused to render the breach strong enough to support the pressure of the aqueous humour. When the ulcer is near the centre, the rupture takes place more frequently, as the iris cannot assist in closing the breach. After the protruded membrane is sufficiently strengthened by the lymph to sustain the pressure, it is then pushed forward, and with it the iris, when the two have become adherent. A complete hernia is thus formed, the pressure of this upon the sides of the ulcer causes their absorption, and the tumour thus gradually enlarges till it sometimes occupies nearly the whole cornea. The tumour at its commencement, when the iris is connected with it, is black; when not, it is transparent and colourless; as it advances it becomes opaque, whitish if the iris be not connected with it, while under opposite circumstances it has a beautiful bluish appearance; the cause of this colour, so different from that of either the cornea or iris, has never been explained.

1241. When inflammation of the cornea occurs in persons of depraved constitutions—in those who have recently lost much blood, as for the cure of acute inflammation—or in children imperfectly nourished, the power of the arteries often appears to be extremely diminished, they do not perform their natural office of deposition with their wonted vigour, whilst the action of the absorbents continues as usual, or is even increased. In such cases more being removed by the absorbents than is deposited by the arteries, *interstitial ulcers from pure ulcerative* absorption occur, and the cornea remains transparent, but indented or pitted, according as the ulcers are diffused or circumscribed. When the arteries are restored to their healthy action lymph is deposited, which fills up the breach, and the ulcer is healed.

1242. If the inflammation in such individuals be very intense, the arteries lose their powers entirely; the vitality of portions of the cornea are lost—and the contiguous parts are removed by the absorbents—the dead portion is cast off as a slough, and lamina after lamina thus slough away. This occurs, besides under the circumstances noticed, in those in whom the parts have been weakened by previous repeated attacks of inflammation, and very frequently after the sloughing of the conjunctiva, which sometimes succeeds purulent inflammation of that membrane, and the cornea then presents that peculiar appearance designated by Mr. Saunders, by the terms “cindry, ragged, flocculent.” When restoration occurs, it takes place, as in common ulceration,

by the deposition of lymph, the excess of which is absorbed, and the transparency of the cornea is sometimes restored, even where a considerable portion of it had been destroyed. Mr. Travers* says, that if the inflammation be arrested even on the verge of gangrene, the cornea is susceptible of restoration by absorption. "This fact," he adds, "I had lately an opportunity of establishing in the case of a lady who was rendered blind by acute suppurative inflammation of the conjunctiva; so inevitable to all appearance was the destruction of the cornea, which had sloughed in a deep sulcus at its junction with the sclerotic above, that the most experienced practitioner of my acquaintance in this branch of surgery, pronounced the case hopeless and irremediable, and took his leave. The highest tonic regimen, bark, wine, and opium, followed close upon a very active and bold depletion, and the anterior chamber was fortunately and unexpectedly preserved. No sooner was a sign of the arrest of sloughing ulceration obtained than I commenced a mercurial course; in three days the system was affected; the recovery of the figure, and transparency of the cornea was rapid and complete beyond all expectation, and an equally perfect state of vision was restored and established."

1243. The gangrenous opacities of the cornea, says Mr. Travers,† produced by lime or other substances destroying its texture, are sometimes superficial and defined in extent, and a process resembling exfoliation ensues. More frequently this disorganization is integral and complete. The cornea, disorganized by acids is rendered instantly opaque, shrivelled, and of a yellow colour, almost resembling a piece of wash leather.

Treatment.

1244. Ulceration of the cornea being the effect of inflammation, where this condition is still present, the first indication is of course to remove it, and this is to be accomplished by the means already pointed out in speaking of the inflammation of this part. Acute pain, lachrymation, and photophobia, often accompany ulcers of the cornea, and where these are not removed by the ordinary remedies, temporary benefit will be obtained from fomentations, but the greatest relief will be experienced from touching the ulcer with a fine-pointed pencil of nitrate of silver, so as to produce an eschar. After the inflammation is subdued in ordinary cases, the disposition to ulceration ceases, granulations form, and the process of restoration takes place; should this flag, stimulants ought to be applied, and the

* Op. Cit. p. 119.

† Op. Cit. p. 170.

best of these is the nitrate of silver. Where the inflammation has been very intense, and it is found difficult entirely to overcome it, the combination of nitre, calomel, and tartar emetic should be administered; or if this state be accompanied with much pain, the blue pill and opium may be given. When the ulcer penetrates deeply into the cornea, and the internal lamina, or its internal lining membrane are protruded by the pressure of the aqueous humour; this protrusion should be touched with the fine pencil of lunar caustic, by which means, together with active antiphlogistic measures, especially topical depletion and purgatives, and blisters to the back of the neck, the further extension of the ulceration, and the evacuation of the aqueous humour may be prevented. Should, however, these means fail, and the ulcer penetrate the cornea, if the opening be small, and opposed to the iris, the further escape of the aqueous humour will be prevented; and by the further employment of antiphlogistics, the progress of ulceration may be arrested, and restoration take place. The iris is however adherent to the cornea by the lymph effused during the healing process, and its actions deranged. This may be often restored by promoting the absorption of the lymph, by putting the system under the mercurial influence and by applying belladonna to the lids and brow. When the aperture made by the ulceration is large, a portion of the pupil is usually prolapsed, and a true hernia of the iris takes place, generally attended with extreme pain from the stricture. This is to be relieved by the free application of the pencil of nitrate of silver so as to destroy the vitality of the part. When the slough separates, a fresh portion of the iris will be protruded, and this is to be treated in the same way, and the operation repeated till the pain ceases and restoration takes place. The iris in this case is permanently injured, and the pupil usually closed. If the prolapsed iris has been neglected in the first instance, it may increase in growth and assume a malignant action; it should then be removed by scissors, and the cut surface and margin of the ulcer freely touched with the nitrate of silver. When the cornea becomes disorganized and prominent, no attempt at effecting restoration will be successful. If the prominence is not very considerable, and no irritation results from it, it had better be left undisturbed; but when it is so great as to prevent the closure of the eyelids, occasion great deformity, or be productive of habitual irritation of the edges of the eyelids, it should be excised, after which the humours will usually escape and the globe collapse. The excision may be most conveniently performed by passing a needle with a ligature across the cornea to steady the eye; the protrusion may then be divided with a large cornea knife, and if the whole be not divided, the remaining portion

may be cut with a pair of scissors. A compress of soft linen should then be applied to the eye and retained by a roller.

1245. In interstitial ulcers the indication is to excite the action of the arteries, which is to be fulfilled by the use of topical stimulants, as a solution of nit. argent., sulph. of copper, or vinum opii, and nutritive diet and tonics, as the sulphuric or nitric acid, and bark. As soon as the restorative action commences, it will be perceived by a whiteness of the ulcer and slight cloudiness of the surrounding parts, denoting the adhesive process.

1246. In the treatment of sloughing ulceration of the cornea, a discriminating judgment and close observation will constantly be required. In healthy constitutions the most prompt and vigorous antiphlogistic measures will be demanded in the commencement, and at the same time the ulcer should be touched with the pencil of nitrate of silver; it will subsequently be often necessary to allow nourishing diet and tonics. When the sloughing process is arrested by these means, mercury will in many cases complete the cure. In debilitated and depraved constitutions, nourishing diet and tonics will often be demanded from the very commencement; but at the same time, when there is much local inflammation, topical depletion should be employed, and afterwards the ulcer should be touched with the solid nitrate of silver, and when the healing process commences, the solution should be applied several times a day. When the ulcer penetrates the cornea, the local applications already recommended are to be employed, but instead of antiphlogistics, tonics and nourishing diet are to be prescribed.

5. *Conical Cornea.*

1247. This affection of the cornea was not described until within a few years past, and as we have never met with an instance of it, we shall transcribe the account given of it by Mr. Travers.* “The cornea is occasionally subject to a process of thinning or absorption of its interlamellar texture, and in consequence loses its natural tonic resistance to the pressure of the contents of the globe. It usually assumes a conoidal figure, but this is not always the case; the projection of the cornea is sometimes uniform, describing the segment of a larger sphere. The apex of the cone corresponding to the centre of the cornea, when this figure is assumed, exhibits a degree of tenuity and brilliancy which gives it the appearance of a pellucid fluid, like a dew-drop suspended. The patient’s vision becomes so inconve-

* Op. Cit. p. 124.

niently short, as to render objects confused at a very moderate distance; the change is sometimes slow, occupying months and even years, and on the contrary I have seen it produced in its greatest extent in the short space of eight weeks; both eyes are generally affected, though not always in the same degree. The disease is not produced by inflammation or any obvious assignable cause; it is more frequent in women than in men, and in my experience affects the periods of youth and middle life; I have never seen it commencing in infancy or old age. It is as much the disease of the robust, as of the weakly constitution and frame of body."

1248. A variety of remedies have been tried for the cure of this affection, such as frequent cupping, issues, evacuating the aqueous humour, all however without success. A pupillary aperture, set in a black ring frame, about a quarter of an inch or more in depth, when the convexity is not very much increased, by confining the rays of light to the central portion of the cornea, and preventing the confusion from the unnatural refraction of the lateral rays, will sometimes considerably assist vision.

6. *Encysted Tumours in the Lamellæ of the Cornea.*

1249. These were first observed by Dupuytren in the case of a child who had been struck on the eye some weeks before by a stone. At first view he conceived it to be an opacity of the cornea, but a more minute inspection showed it to be a serous encysted tumour existing between the lamellæ of that coat. He introduced a cataract needle into the small cyst, and moved the instrument up and down in order to irritate its inner surface. The fluid in the tumour was evacuated, but in fourteen days it formed again. The operation was repeated, and adhesion of its sides took place, but opacity of the cornea resulted. No other surgeon has, we believe, noticed these tumours, and little is known respecting them.

7. *Ossification of the Cornea.*

1250. The vessels of the cornea, like those of the other fibro-cartilages, in some few instances secrete osseous matter. Mr. Wardrop* has met with it on one occasion; in this the form of the whole eye was changed, the cornea had become opaque, and on macerating, a piece of bone weighing two grains, oval-shaped, hard, and with a smooth surface, was found between its lamellæ. It is mentioned in the *Nouvelle Bibliothèque Medicale*, for

* Op. Cit. p. 72.

May, 1817, that the eye of an old man had been recently presented to the Société Anatomique by M. Monot, in which the cornea was ossified throughout.

§ III. INFLAMMATION OF THE SEROUS LINING MEMBRANE OF THE CORNEA.

1251. Inflammation of this tunic, independent of that of the cornea, is of too unfrequent occurrence to enable us to ascertain very minutely its progress and terminations, but as far as our observation goes, they are similar to those of other serous tissues. In the following case we are enabled to observe this affection with great advantage, as it was uncomplicated with inflammation of the cornea.

1252. Eliza Williams, a coloured woman, aged twenty, applied to the Pennsylvania Eye Infirmary, April 6th, 1826. Her sight had been growing dim for several days, and she suffered slight pain in her eye. On the most minute examination, no change from a healthy state could be perceived, except perhaps an extremely faint dullness, almost imperceptible, situated at the posterior part of the cornea, the cornea itself being evidently unaffected. After some days a small spot became visible, and was shortly followed by two others, differing both in situation and appearance from the opacities produced from inflammation of the cornea. They were deep-seated, and evidently produced by the effusion of lymph on the inner surface of the cornea, giving it the appearance of being mottled with white. The margins of these spots were well defined, and the lamina of lymph so thin as not to produce perfect opacity.

Treatment.

1253. The treatment we employed in this, and which we would recommend in similar instances, was the employment of antiphlogistics, to prevent effusion, and to put the system under the mercurial influence, to promote absorption after this had taken place. In the case we have described, owing to peculiarity of constitution, this latter could not be persevered in to a sufficient extent, and the spots have remained permanent.

CHAPTER X.

DISEASES OF THE TRACHEA AND THORAX.

1254. THE variety of affections of the chest, to which inflammation gives rise, renders their history highly important to the practitioner. Until lately, too little interest has been felt upon this subject by medical men; not because they were ignorant of its importance to their patients, or indifferent to the interests of their profession, but because there was but one mode of ascertaining the condition of the contents and lining of the thorax; namely, by a post mortem examination, and by this they could profit but little, as the several diseases, or rather the consequences of inflammation of these parts, had no clear and decided diagnostic symptoms, by which they could discriminate one affection from the other during the lifetime of the patient. Neither could they ascertain the various terminations or consequences of inflammation, as it might attack one, or several of the tissues composing the internal surface of the thorax, or of the parenchyma of either of its viscera.

1255. These difficulties to the investigation of the affections of the chest, no longer exist; nor can the same excuses be made; for now, a certain and accurate method is discovered, whereby every deviation of healthy structure can be ascertained with an exactness that can scarcely be credited by those, who have not witnessed the results of stethoscopic or auscultic examinations. The number of pathological changes produced by inflammation, which the stethoscope reveals to the experienced ear with an almost absolute certainty, far exceeds what is generally imagined, or could well be believed. Almost all the diseases of the chest, and especially such as were attended by cough and expectoration, (and they nearly all were accompanied by these,) were called phthisis, or consumption; but late pathological researches have discovered a great variety of changes in the structure and condition of the tissues of the thorax, after they have been subjected to inflammation, or during its actual existence and progress. It is scarcely necessary to say, how important these discoveries are to the practical physician.* These considerations have led us to

* "Auscultation may be said to have disclosed a new and very direct source of pathological investigation in a class of diseases, the diagnoses of which have hitherto been involved in much obscurity and uncertainty; and in which any means of acquiring, during life, additional information on these essential

a more extensive investigation of this subject, than we had originally contemplated—its importance we are certain will justify our plan.

1256. It may be useful to state, that the objections we have heard urged against the study of the diseases of the chest, by percussion, and mediate, and immediate auscultation, have been, 1st, the difficulty of acquiring such a degree of knowledge of it as shall be practically useful. This we are aware, has prevented many from pursuing this important inquiry; but that this objection is not well grounded, may we think be safely inferred from the observations of Dr. Williams and Dr. Townsend; the former has written a short, but valuable work entitled, “A Rational Exposition of the Physical Signs of the Diseases of the Lungs and Pleura.” And perhaps few are better qualified to judge, or to teach, upon this subject, as he informs us with as much modesty as candour, that his “acquaintance with the physical signs” (of the diseases of the chest,) “is the result of some extent of study and observation, prosecuted in the wards of La Charité, where Laennec taught, and Andral prosecuted his labours;” thus tacitly acknowledging his obligations to these experienced practitioners, for the information he possessed upon the subjects on which he has written; but in no part of his works, does he acknowledge the difficulty above stated.

1257. In his preface he makes some important and judicious observations on the nature and value of auscultation and percussion, some of which we feel it will be proper to give in his own words; and we shall emphatically mark such as we deem most useful.

1258. He tells us, p. viii. that, “*the local study of diseases must not remove our attention from their general phenomena; our examination of their physical nature must not exclude the consideration of many constitutional effects, that by reaction may be converted into causes; and still less should physical signs of doubtful import make us neglect obvious disorder of the system.*” This distinctly proves the necessity and propriety of attending to the constitutional phenomena of diseases.

1259. Again, “Thus limited, *the local study of diseases* is more advantageous than the knowledge of their general forms; an examination of their *physical signs*, when possible, more useful than the perplexing consideration of a host of uncertain and fallacious constitutional symptoms; and *when physical*

points, ought to be the more important, as that obtained by the other senses is, and must always be, so scanty and unsatisfactory.” Dr. Gregory on the Diagnosis of the Diseases of the Lungs and Pleura. Edinb. Med. and Surg. Jour. for July, 1830, p. 36.

signs are wanting, or beyond the sphere of our observation, these constitutional ones are our best guides, which most nearly depend on the physical and unchangeable character of the disease. For the local study of a disease acquaints us with its proximate and essential cause, and this knowledge suggests means for its removal; and by a study of its physical signs, and of those general ones most allied to them, we obtain the most certain method of discovering its existence, and of distinguishing its character."*

1260. The second objection urged against this study is, "that it is impossible to convey, by description, an accurate idea of sounds." To remove this objection, we shall only quote the words of Dr. Townsend upon this point.†

1261. "I know that it has been often urged as an objection to the use of the stethoscope, that it is impossible to convey by description an accurate idea of sounds; and that for this reason, none but those persons who have studied under the author of mediate auscultation, can be sure that they refer each sound to its proper denomination. I can only reply to this objection by stating, that although, during my attendance on the wards of Mr. Laennec, I never had an opportunity to study these sounds, (*the tintement metallique and bourdonnement amphorique,*) yet so precisely did they answer his description, that I felt not the least difficulty in recognising them; and so perfectly was I convinced of their identity, that I hesitated not, on the sounds I had never heard before, to pronounce on the existence of a morbid lesion I had never previously seen, and I appeal to the result, if my confidence was not justified." And as perhaps no case can better illustrate the accuracy of diagnosis by the stethoscope than one of those related in the work above named, we

* Dr. Forbes, with a view to prevent an exclusive reliance upon the physical signs presented by percussion and auscultation, says, "I think it highly necessary, in this place, to caution the student against yielding too implicit confidence to auscultation and percussion, as means of diagnosis, to the neglect or exclusion of the more usual methods. It is no doubt true, that these measures are of the very first importance in the diagnosis of this, as of almost every other disease of the chest; that in many cases they alone suffice to fix the diagnosis; and that in others this cannot be established without them: at the same time, it is equally certain, that if we attempt, as our general practice, to draw our conclusions, from these *signs* alone, without reference to the general and local *symptoms*, we shall frequently not merely fail to attain our object at all, but we shall run into the risk of falling into errors of the most serious nature. It is only by combining the practice of auscultation with the faithful observation of symptoms, and by studying the results obtained from both sources, with a reference to the pathology of the disease, that we can hope to attain to such a certainty of diagnosis, as can satisfy a philosophical mind."

† See his excellent cases in the Transactions of the King and Queen's College of Physicians in Ireland.

shall take the liberty of giving it as an instance of valuable illustration of what we wish to enforce by these observations—namely, the accuracy and importance of stethoscopic examinations in the affections of the chest; and at the same time to recommend the study of auscultation to every practical physician, be his experience and tact what they may, in the general phenomena and constitutional effects of disease. Indeed, to him who is best acquainted with these latter phenomena, the study of auscultation will be increased in value, besides being of more easy attainment.

1262. “A tall, well-proportioned dragoon, was attacked in October, 1826, with cough, pain in the chest, and diarrhœa, for which he was bled, blistered, &c. A recurrence of the same symptoms called for a repetition of these measures, which, as well as several others afterwards employed, failed to produce any permanent advantage.” Dr. Townsend saw him March 25, 1827, at which time he was up and dressed; “walked about the room, but was soon out of breath, and easily fatigued. He was considerably emaciated, had much dyspnœa, not sufficient, however, to materially affect his speaking, profuse night sweats, diarrhœa, thirst, anorexia; pulse 120, small and vibratory; number of respiration 30; cough most troublesome on waking in the morning; sputa apparently mucus; are stated to have diminished considerably in quantity within the last three weeks, from which period is also dated the aggravation of his dyspnœa. On viewing the thorax, the right side appeared considerably more dilated than the left, especially anteriorly and laterally at its lower half. Percussion employed over the dilated surface elicited a clear hollow sound. In this space, too, the respiratory murmur was perfectly inaudible; but immediately after coughing, a peculiar sound, resembling the vibrations of a porcelain jar, when generally struck, (*tintement metallique*,) was distinctly heard in a space corresponding to the posterior convexities of the sixth, seventh, and eighth ribs. The sound was not produced either by respiration or speaking. Succussion did not produce the sound of fluctuation, although the patient said he felt water dashing against his side. In the superior part of the same side of the chest, (the right,) the dilatation was scarcely, if at all perceptible. The sound on percussion not particularly sonorous, and the respiratory murmur audible posteriorly.”

1263. “At the left side, the sound on percussion was natural, though considerably duller than at the right. Respiration was distinctly audible all over the lung’s surface, except in the space corresponding to the superior lobe, where cavernous respiration with perfect pectoriloquy were heard distinctly.”

1264. “*Diagnosis*. A tubercular cavity occupies the upper

lobe of the left lung. The dilatation of the right side of the chest is produced by pneumothorax, and the coexistence of the *tintement métallique*, proves that the air of the pleura proceeds from a communication between the bronchia and the pleura. The medium of communication in this case, I conceive to be a tubercular cavity in the opposite lung, converts the probability of this species of abscess into a moral certainty, of which no doubt could have existed, if the patient had been examined by the stethoscope, and pectoriloquy found under the right clavicle, before the accession of pneumothorax. I attribute the comparatively dull sound on percussion, on the superior part of the thorax, and its less degree of dilatation to the existence of ancient adhesions, which prevented the air accumulating in that region, between the pleura costalis and pulmonalis."

1265. "To recapitulate.—The lesions I expect to find are, a tubercular cavity in the upper lobe of the left lung; the right side of the thorax distended with air and fluid, (the latter at present exists in small quantity, but its proportion will no doubt go on increasing;) in the right lung a tubercular cavity communicating with the sac of the pleura on the one hand, and with the bronchia on the other, allowing the air inspired to pass freely into the pleura; and finally, the superior lobe united by old adhesions to its corresponding costal pleura. This detailed diagnosis was written and handed over to Dr. Cheyne on the evening of my first visit."

1266. "*March 26th.*—Had no sleep last night; face expressive of considerable suffering; a bluish tint of lips and nails is perceptible. Says he feels no pain whatever. Cough peculiarly deep and hollow; slight mucous expectoration. At the right side, sound on percussion continues hollow inferiorly, even over the region usually occupied by the liver, where a full inspiration sounds precisely like blowing into an empty bottle, (*bourdonnement amphoric.*) Speaking as well as coughing, is now followed by the *tintement métallique*. In the superior part of the thorax, the sound on percussion is clear and hollow anteriorly, where all the respiratory murmur is extinct. *Quantity of gaseous effusion increases.*"

1267. "*28th.* Does not recollect any sudden aggravation of his symptoms about the period when his breathing became materially affected. Never suffered much pain of right side; thinks on the whole that the other side now gives him, and has, for the last three months, the greater uneasiness of the two. Sits up, and walks about. Pulse 120; respiration 36. No change in the stethoscopic sounds."

1268. "*April 1st.*—Pain of left side removed by the application of a blister; dyspnoea increased; number of respirations 38;

diarrhœa; profuse night sweats. At the right side, sound on percussion is become dull posteriorly in the space corresponding to the inferior portion of the thoracic cavity, where no sound whatever can be heard. *Fluid accumulates.* Above the eighth rib, the sound on percussion is hollow; the ordinary inspirations sound like blowing into a bottle. Expiration is followed by a musical sound, resembling the vibrations of a fine wire chord. Coughing produces a peculiar sound; exactly similar to the ringing of a porcelain jar; the voice much more obscurely so. On making the patient sit up in bed, and shaking him gently by the shoulder, (the stethoscope being applied posteriorly about the convexity of the seventh rib,) a fluid is clearly heard dashing against the sides of the thorax. The patient is sensible of this fluctuation, says *he* hears it, though *I* could not without applying my ear. When he suddenly rises from the recumbent posture, three or four drops are heard to fall successively from above on the surface of a fluid. This sound is most distinctly heard over the seventh rib posteriorly. In the left lung, pectoriloquy, &c. as before. Feels no pain whatever in right side. I, in consequence, added to my former diagnosis, that the constant absence of pain proceeded probably from a thick coating of albuminous exudation, the product of previous inflammation, which lines the pleura, and defends it from the contact of air."

1269. The symptoms gradually became aggravated, and on the 14th there were "profuse night sweats, colliquative diarrhœa, stools consisting of a black matter resembling coffee grounds, great prostration of strength, increase of dyspnœa, though it never became extreme up to the time of his death, which occurred on the afternoon of this day."

1270. "*Dissection, forty hours after death.*—External appearances. Body well proportioned, considerable emaciation, legs and feet slightly œdematous; the right side appeared considerably more dilated than the left, but on measuring with a tape, the greatest difference did not exceed an inch and an half. On employing succussion, fluctuation was heard by applying the ear to the chest, but was not audible to the bystanders."

1271. "*Thorax.*—The right side. A trocar was introduced between the fifth and sixth ribs, near their junction with their cartilages—an immediate rush of air followed." "On removing the sternum, a vast unoccupied space was observed in the anterior part of the thorax, capable fully of holding two quarts of fluid. This space had been occupied by air, which by consequence we estimated at that quantity. The lung just appeared above the fluid which occupied the posterior region of the thorax; it was closely compressed against the spine, and seemed reduced to one-third its natural size. The fluid effused, might

be in quantity about two quarts, was of a yellowish-green colour, tolerably clear at its surface, but rendered turbid at bottom by numerous fragments of opaque, puriform flocculi of albumen."

1272. "Before touching the lung, to guard against an accidental formation of the opening which I expected to find, an incision was made into the trachea, and the pipe of a pair of bellows introduced. The air passed freely through the lung, and appeared in bubbles at the surface of the fluid, in which it was immersed. The fluid being removed, the upper lobe of the lung was found in close contact with, and firmly attached to the costal pleura. The whole surface of the lung, except what was attached, was covered with an albuminous exudation of a dirty white colour, of several lines thickness, its surface wrinkled not unlike the rind of a shrivelled apple. The costal, mediastinal, and diaphragmatic pleuræ were still more thickly coated with this exudation, which, though strongly attached to the subjacent pleuræ, and apparently incorporated with it, might by careful dissection, be separated from it, leaving the membrane underneath, in a state of perfect integrity. The lung was now detached, on its anterior surface, about two inches from the summit of the upper lobe, was discovered a fistulous orifice, capable of receiving my little finger, its margin well-defined, rounded, and nearly cartilaginous. A probe introduced passed readily through a series of tubercular cavities into one of the principal bronchia. At intervals of half an inch below this fistulous orifice existed three small, oval, superficial ulcers, which, on close examination, did not appear to communicate with the bronchia. They were evidently formed by softened tubercles, developed immediately under the pleura; for on different parts of the lung's surface there were several similar oval nests of tubercles, some not yet softened, others quite soft, and elevating the pleura, through which they had not as yet formed a passage. Posteriorly near the root of the lung, and about the base of the superior lobe, immediately underneath its adhesion to the pleura, was another fistulous passage with a large tubercular abscess occupying nearly the whole upper lobe. This passage was lined all through with a highly vascular membrane, exactly similar to that which lined the tubercular abscess, having its surface coated with a layer of lymph. Into this vast abscess was also traced one of the principal bronchial divisions; its entry into the cavity was within a few lines of that of the sinous passage above described. The middle and lower lobes contained several tubercles. The bronchial glands also were much enlarged, and studded with tubercles."

1273. "The left side of the chest.—This lung was studded throughout with granular tubercles of the size of duck-shot. In

the superior lobe was found one cavity, capable of containing a large filbert, and communicating with two or three smaller ones. In the middle lobe, (the left lung had three lobes,) the tubercles were all opaque and whitish. In the inferior, many of them were in the first, or grayish, semitransparent stage."

1274. "This case of pleurisy, with pneumothorax, differs from any other that I have seen recorded, in the total absence of pain in the side affected; in not having its commencement marked by any sudden or violent symptoms of dyspnœa or pain; and also in this, that the patient was able, almost to the time of his death, to dress himself, and sit up; whereas M. Laennec expressly states, in all the cases which he had seen, the patients were excessively oppressed, and unable to quit their beds. Indeed he lays down these circumstances, as adjuvant diagnostic marks, whereby to distinguish this disease from emphysema. But in this instance such minor distinguishing features were not necessary. The great distention of the right side of the chest; its remarkable sonoriety; the total absence of respiration, unless where the lung was attached; the extraordinary development of the pathognomonic signs, all established beyond the possibility of doubt, the precise nature of the disease. I shall only add, that the dull sound supervening inferiorly, and gradually ascending, the increasing capacity and sonoriety of the superior part of the thorax, together with the increased extent of surface over which the pathognomonic sounds were heard, did all, and each of them, mark exactly the progress of the disease from day to day, up to the period of its fatal termination."

1275. We trust we have, in what we have just said, excited a curiosity, if we have not fixed a determination in the mind of the reader, to investigate the claims of auscultation to his serious attention; and also, that we have introduced a case, every way illustrative, of the accuracy of diagnosis made by stethoscopic examinations. The several terms employed in illustrating auscultation, will be found explained in the Glossary, at the end of the volume.

SECT. I.—OF CATARRH.

1276. This common affection, or "a cold," as it is commonly called, in its simple, or uncomplicated condition, is one of more inconvenience than of danger. It is of such frequent occurrence, and so rarely attended with danger, or even pain, that the physician for the most part, is not called upon for his prescription. Indeed, the plan of treatment for its cure, is by most people looked upon worse than the disease itself; and thence, its tedious protraction in some cases. It is usually more severe with chil-

dren than with adults ; owing to the greater susceptibility of the mucous membrane of the nose, windpipe and the lungs, with them, to take on inflammation. And hence, with children, it often becomes a disease of great severity, and sometimes one of much danger ; hence, we are called more frequently to their aid, than to the adult.

1277. This complaint almost always begins by a sensation of fulness or thickening of the membrane that lines the nose ; an increase of secretion of the common mucus of the part takes place, though somewhat changed in its character—that is, it is not only thinner, but also rather acrid, as the increased vascular condition of the Schneiderian membrane, together with slight excoriations of the most depending part of the nostrils, and upper portion of the upper lip, testify.

1278. This condition of the nostrils continues an uncertain period, according to the force of the remote causes, the state of disposition, or the care or neglect with which the complaint may be treated. But be the period longer or shorter, it is almost always found, that the character of the mucus is a little altered ; becoming thicker, and tinged slightly with a yellowish hue, before the inflammation ceases altogether, or proceeds further in the course of the mucous membrane. If it travel upwards, the membrane lining the frontal sinuses becomes implicated ; and then is experienced, a painful fulness in the frontal bone, which is sometimes severely augmented, by every attempt to dislodge the frequent accumulations of mucus from these parts by the blowing of the nose.

1279. When the change just spoken of in the quality of the mucus (par. 1278,) takes place in the nose, we find the patient experiences a relief from the more distressing sensations in this part ; and the disease may soon take its departure, or it may be protracted by the inflammation descending into the trachea and bronchia.

1280. Then an unpleasant irritation is felt in the larynx, almost amounting, in some instances, to an itching—and cough is now excited. If the mucous membrane is much affected, we may have, either a hoarseness, or a loss of voice. The former may be the forerunner of croup ; but the latter seldom or never.

1281. If the disease enters the bronchia, a soreness and a sense of stiffness, is experienced in the chest ; especially on its anterior portion, along the internal course of the sternum. This may be more or less violent, as the inflammation may have pervaded the bronchia to a greater or less extent. This pain is sure to be much augmented by coughing ; and if this be strongly provoked, it extends over the whole of the chest, and

sometimes appears to affect even the diaphragm itself, if we may rely upon the seat of pain, for this assertion.

1282. This extension of pain through the thorax, seems to declare the extent of the bronchial inflammation, and is for a time very distressing to the patient; especially as a sense of painful dryness is felt, until the vessels begin to relieve themselves, by pouring out mucus. This secretion is at first very thin, or serous; and occasionally has a slight saltish taste; and in appearance differs but little from the saliva, with which it may be mixed. In children, this mucus is sometimes so suddenly and abundantly secreted, as to threaten suffocation; and perhaps this would really happen, had not nature made a provision to counteract this tendency, by possessing the larynx and stomach with an important sympathy between each other, to supply the place of expectoration. Hence, we find in young children, that an effort to vomit is almost always excited, whenever this surplus mucus is forced into the larynx; which effort kindly relieves this part from its embarrassment, and prevents suffocation.

1283. In the adult, this risk is never incurred; as voluntary expectoration is constantly exercised, whenever the sense of its necessity is excited, by a peculiar sensation taking place in the lungs, or in the course of the trachea. In children, the appearance of the mucus does not vary so much as in the adult; in the former it may be very abundant; but it almost always retains its transparency, to a greater or less degree, however tenacious it may be in consistency. While in the adult, this substance is sometimes found to include a dense, inspissated phlegm, of a peculiar whiteness, or even a true pearl colour; and this is sometimes accompanied with a dark, fuliginous matter, or even by slight streaks of blood. And after a while, the sputa become tenacious, yellow, or greenish.

1284. Early morning, generally speaking, is the period at which the cough is the most troublesome; it is sometimes augmented after meals, especially if these have consisted of animal substances. When the expectoration is very abundant and frequent; and particularly if much effort has been employed to dislodge the mucus from the bronchia, a sense of rawness or tenderness is felt, indicating the denuded condition of the bronchial ramifications.

1285. In general, in adults, the sanguineous system is not severely affected in the commencement of catarrh; though slight fever may be observed during its course; but this is more particularly obvious in children. This febrile condition is most evident in the evening; and it sometimes terminates like a genuine paroxysm of fever, in a slight perspiration towards morning, and with a lateritious deposit in the urine.

1286. In the severer forms of this complaint, fever, during its whole course, is obviously present; a difficulty of breathing rarely attends this form of bronchial disease, unless temporarily, as in children; and then only when the secretion of mucus is very abundant. If it accompany catarrh in the adult, it is only under its severest form, or where there exists some organic lesion. In such cases, the fever may be severe; and the disease may assume a menacing appearance, from other important structures, as the brain, or stomach, being made to participate with the catarrhal fever.

1287. This complaint is caused by the sudden application of cold when the body is hot; by the long-continued exposure to cold and moisture when the body is not heated; by the sudden transition from a cold, to a heated atmosphere; or from a partial draught of air upon some part of the body, but especially upon the head. But one of its most fruitful sources, is exposure to cold, while the skin is wet or moist with perspiration, as after dancing, or other exercise. With children, it is most frequently produced by keeping them standing in a cold atmosphere, as at the door or window; by being suddenly placed there soon after they have risen from sleep; or by being kept too long under the operation of washing, &c.

1288. Before we detail the mode of cure, it may be well to consider the pathology of this disease—this may be the more necessary, as much popular error exists on the subject of colds.

1289. Laennec informs us, that “a redness more or less marked, and at most a slight thickening of the internal membrane of the bronchia, are the only traces which this disease leaves in the affected organs; if we except a certain quantity of phlegm in the bronchia, resembling that expectorated by the patient. The redness and swelling very rarely occupy the whole bronchial membrane, even of one lung. When the contrary is the case, the disease is very severe, and accompanied by a violent fever. Most commonly there is congestion only in certain parts of the membrane in one or both lungs, even when there is much fever and expectoration. The portions which are red and swollen, are usually more consistent than natural; sometimes they are somewhat softer, particularly in the catarrhs which accompany severe fevers; and occasionally, the degree of the softening is equal to that which occurs in the mucous membrane of the stomach and intestines, in certain cases. The extent and intensity of the redness are not always in proportion to the violence of the inflammation; the quantity of expectoration, or the acuteness of the case. Thus, in the catarrh, whether latent or not, which complicates fevers, we find the membrane swollen, and of a livid red over almost its whole extent; and even softened, here and there; while in the idiopathic disease, even when very acute, it

exhibits marks of inflammation in certain points only." Laennec, however, observes, "that the redness and softening of the bronchial membrane are always the more marked according as the examination is remote from the period of death, and the decomposition of the body more advanced."* In children, and especially in very young children, the disease appears to be almost altogether confined to the lining membrane of the nose, which shows itself after death by marks of inflammation of the mucous membrane lining the nostrils, and extending towards the larynx—the membrane has also been found softened. And it is said that this tissue sometimes furnishes a membrane similar to that produced in the trachea by croup—this we have never seen.

1290. Notwithstanding that catarrh obviously consists of an inflammation of the mucous membrane of the bronchia, Laennec declares, "that bleeding is rarely useful in it, except in very robust constitutions, or where the symptoms are so severe as to threaten peripneumony, or where there is blood in the expectoration." p. 69. How far this may be true in the comparatively mild climate of France, we cannot pretend to determine; but in this and in climates similar to our own, it would be a dangerous doctrine to inculcate, especially when the disease attacks children. It is true, we may give so extensive a latitude to his exceptions, as to make them meet all the necessary exigencies of the disease; but it is obviously not his intention that this should be done. For he very emphatically declares, that "this measure, with the exceptions just named, has always been rejected by good practitioners, as rendering the disease of longer duration, as diminishing and sometimes checking the expectoration." *Ib.*

1291. The remarks of Laennec we believe, cannot apply with much truth to the catarrh of this country; for here, we are very often under the necessity of employing the lancet, if the inflammation has taken possession of the bronchial surface. But if it confine itself to the Schneiderian membrane or to the frontal sinuses, bleeding we grant, will rarely be necessary; but if it invade the trachea and lungs, the cough will very often require the loss of blood for its relief; especially if this be attended by pain and soreness in the chest, and by a riving pain in the head. Indeed the latter symptom alone, has frequently led us to the employment of the lancet for its relief; and so far we think, it has always been useful.

1292. We have never witnessed the ill effects of bleeding mentioned by Laennec; namely, its having "rendered the disease of longer duration, and as diminishing and sometimes checking

* Diseases of the Chest, Forbes's Trans. p. 62.

expectoration." On the contrary, we have very often been under the necessity of abstracting blood, with a view of promoting the bronchial secretion; and further, we can very confidently declare, we have rarely failed to have our intention fulfilled.

1293. We are every way confident that in children did we not sometimes employ bleeding in this disease, we should withhold one of the most efficient remedies for its cure, if we did not pretty suddenly convey them to an unnecessarily early tomb; or the disease would spin itself out to a great length, and eventually perhaps terminate in incurable effusions within the bronchial ramifications, or leave chronic congestion within the substance of the lungs.

1294. We therefore never fail to recommend the abstraction of blood, when fever and pain attend, or if dyspnœa be present. We abstract blood from either the arm, or from between the shoulders by leeches, when children are the subjects—from the arm at first, preferably, if there be much heat of skin, oppression, and crying after each spell of coughing. Children are more liable, as we have already observed, to a more exalted degree of bronchial inflammation than adults; but as many find it difficult to ascertain its presence in catarrh, and withhold the lancet from this cause, it may be well to remark, that the following simple signs, have never failed to point out to us this condition of the mucous membrane of the bronchia, if it existed.

1295. First. The child is disposed to lie on its back, with its head thrown backward, even lower than its chest; and when an attempt is made to raise it, it resists the change as much as it can, by stiffening its neck, and suffering itself to be elevated in this condition, by the hand being placed upon the hind-head.

1296. Second. When this attempt is made, the child shows that the effort is attended by pain, by its complaining or crying at the moment.

1297. Third. The child is sure to cry after each spell of coughing, with more or less violence; and if it be old enough, it may be observed to make efforts to prevent coughing from taking place.

1298. When these signs combine, or even when they exist singly, we never fail to abstract blood, and this almost always with marked advantage; nor do we stop here, if these symptoms continue; for we bleed or leech again and again if necessary. Laennec's opinion of leeching, however, is not more favourable than it is of bleeding from the general system; for he says, that "leeching has the advantages and disadvantages of venesection, only in a less degree." *Ib.*

1299. He however says, that "cupping is in general more useful. By using many glasses, and yet taking away only a small

quantity of blood at one time, and more particularly by keeping the glasses applied for a considerable time, so that the tumefaction produced by them does not too speedily subside, we frequently obtain, in the severer cases, marked relief of the oppression and other symptoms." p. 69. He could not well have demonstrated the necessity of losing blood better than by this last direction—for though he directs but a small quantity of blood to be taken at one time, he nevertheless directs the application of "many cups," and attaches a value to them in proportion to the continuance of "the tumefaction produced by them."

1300. Now, we would ask, on what does the continuance of the "tumefaction" depend? Certainly upon nothing, but the degree of extravasation that the cups produce; and the quantity of blood that is poured into the cellular substance, is as much and as certainly withdrawn from the circulating mass, as if it had been drawn by opening a vein; therefore the system is deprived of so much blood. We however admit that the effects are sometimes more important and less debilitating than if so much had been abstracted suddenly by opening a vein. This arises from the very slow manner in which the blood is drawn from the circulation; and also by the capillaries furnishing a certain proportion of it, and which quantity might almost be said to be already out of the common circulation, and would not be so certainly missed by the heart and larger blood-vessels.

1301. Leeches produce a very extraordinary effect upon the system; one altogether different from that produced by the opening of a vein. For the faintness which takes place after leeching, bears very little analogy to that which follows venesection; for the quantity of blood abstracted by them, will by no means always account for the peculiar state of exhaustion the patient exhibits from their application. The state alluded to seems to be produced by some unknown action upon the nervous, rather than upon any loss of balance in the sanguiferous system. It has been attempted to be accounted for, by calling in the aid of the imagination, or the horror which some feel at the sight of the animal itself—but this can only obtain where such aversion exists; but it will not account for this effect, when this power is not exercised, as in children, &c. Be this as it may, as regards the immediate cause of this state of faintness, the effects are sometimes highly valuable; for when it takes place, it saves almost always, a considerable expenditure of blood; for we have constantly remarked, that arterial action has been more certainly and permanently abated, than when a state of exhaustion has been produced by the direct abstraction of blood by venesection; for after this, a reaction almost always follows, which is not so certainly the case with leeching.

1302. It is true that leeches may produce faintness, from the over-quantity of blood, they may abstract; when this happens, the faintness is precisely like that produced by venesection; but it does not resemble the state in question. Cupping, which certainly bears a strong resemblance to leeching, in its mode of accumulating and abstracting blood, yet it never, so far as we have seen, produces an effect similar to that induced by leeches.

1303. We are therefore very partial to their employment, especially in children; and particularly after the force of the arterial system has been abated in urgent cases, by a bleeding from the arm. We are persuaded, that no remedy meets the exigencies of the disease so well as leeches where a further reduction of the system by the loss of blood is required. And we are in the constant habit of using these little animals, whenever there is fever with a confined breathing, together with the marks, which we have just declared, betray a lurking inflammation in some part of the pulmonary system; for it may be remarked, that an exalted, acute mucous catarrh may be complicated with inflammation of some other portion of the lungs, than the bronchia. Leeches in such cases should be applied between the superior portions of the scapulæ or shoulder blades.

1304. The bowels should be well opened; first by calomel, followed by castor oil or magnesia; that is, a few grains, say eight or ten, for an adult, or three or four for a child, should be given at once; and if it do not operate in three or four hours, it must be followed by either of the medicines just named, in a suitable quantity so as to secure three or four evacuations.

1305. With children, the calomel oftentimes answers an admirable purpose, by exciting the stomach to vomiting, whenever there is any thing crude or offensive in it, and it very rarely fails afterwards to affect the bowels. The belly should be kept open during the course of the acute stage of the disease; but it is seldom necessary to purge briskly. Indeed this is sometimes injurious, especially when there is a tendency to diarrhœa, as sometimes happens when the first stage has been neglected or improperly treated, as but two frequently happens, in conformity to an old, but ill-understood adage; namely, "feed a cold, but starve a fever." Unfortunately, this proverb is obeyed literally in too many instances; and this sometimes to the destruction of the patient. The true interpretation of this "old saw," is, that you are to starve a cold, because there is always more or less fever with it.

1306. Indeed, Laennec himself may be justly charged with having perpetuated an indifference to a "cold," by the employment of a similar saying; "a cold well nursed lasts forty days, and a cold not nursed lasts six weeks; (p. 70,) for it directly im-

plies that it will run a certain course in spite of opposition; and that it will last no longer, if it be indulged in its course. This doctrine is particularly dangerous, when sanctioned by such high authority, especially as the statement has no foundation in fact; at least, not in this country. For we are as certain as we can be of any fact, not mathematically demonstrable, that a catarrh can very often be cut short, if it be taken at a certain period; and that its duration and force can be very much diminished by a proper mode of treatment; of this we shall speak presently.

1307. In the treatment of catarrh, we have directed the loss of blood and moderate purging; in addition to these, when the case has required them, we direct occasional puking with children, and the pretty steady use of expectorants. Children are liable in this complaint to oppressive accumulations of phlegm; owing very often to the entire want of the voluntary power to expectorate. It therefore becomes important, that the bronchia should be relieved from this surcharge of mucus; and in most instances, this can only be done by exciting the action of the stomach.

1308. It sometimes happens, however, in the more acute stage of this complaint, that the secretion of mucus is either not sufficiently abundant, or that it is too tenacious to be readily delivered from the bronchial ramifications; in each of these cases, expectorants are highly valuable; and should always be had recourse to, after bleeding and purging, if the case have required these latter remedies; or immediately, if the state of the system should not require them.

1309. For these purposes, as well as to excite occasional vomiting, we know of nothing equal to the compound syrup of squills, or as it is more familiarly called, Coxe's hive syrup.* This medicine can be employed so as to satisfy each of these intentions. Thus, to a child that it may be proper to puke, the appropriate dose, must be repeated every fifteen or twenty minutes until the stomach revolts. When the secretion is not sufficiently abundant or is too tenacious, the proper dose may be repeated every two hours. A solution of the tartrate of antimony is also a valuable expectorant, and febrifuge with children; the adult will rarely require either the syrup of squills, or the preparation of antimony. The dose of the tartrate of antimony must be minute; the twentieth of a grain every two hours, will be sufficient for children from a year to two years old; a thirtieth, for children from six months to a year; a sixteenth, for children from two years to three or even four years old; unless you wish to excite vomiting. In this case it may have double the strength

* See Chapter on Hooping Cough, for the composition of this article.

specified above. Either of these articles becomes highly important, if the cough be very troublesome. For we cannot give any preparation of opium in the commencement of catarrh, if the symptoms be at all urgent, though it becomes highly important in its decline, or when it is in its forming state. It may however be proper to observe, that we would prefer the solution of tartar emetic to the hive syrup, if the fever be high in the commencement, or remained unsubdued.

1310. Much mischief is done by the indiscriminate exhibition of opium, in some form or other, in this complaint; because cough is present, it is considered as a matter of course that laudanum should be given; but opium in any shape whatever, must not be used when the pulse is active, the skin hot, the expectoration sparing or very thin, or the oppression considerable. It can only be given with advantage when the contrary of all these obtain; it then is not only safe, but absolutely proper. The best forms for its exhibition, is that of the brown, or the spermaceti mixture.*

1311. During the whole treatment of acute catarrh, the strictest antiphlogistic regimen should be observed; we have elsewhere, (pars. 214, 215, 216,) explained our meaning of this term. The most plentiful dilution should be indulged in; the air of the room should never exceed 60°, if possible to prevent it. All sudden transitions of temperature should be avoided with much care; and the body should not be overheated by clothes, nor the temperature of the skin be too much reduced for want of a sufficient quantity of them. By the first, the skin is stimulated

* The brown and spermaceti mixtures are made as follows:—

R. Elix. paregor. - - -	℥j.	Take Paregoric elixir, -	1 ounce.
Vin. Antim. - - -	℥ss.	Antimonial wine, -	½ ounce.
Pulv. g. Arab. - - -	℥ij.	Powdered gum Ara-	
Succ. glycerh. - - -	℥ij.	bic - - -	3 drachms.
Aq. fervent. - - -	℥vj.	Liquorice extract,	3 drachms.
M.		Hot water, - - -	6 ounces.
		M.	

An adult may take a table-spoonful every three or four hours until cough is relieved. A child of six months to a year, a common-sized tea-spoonful; above this age, from a large tea-spoonful to a dessert-spoonful.

Or the spermaceti mixture:—

R. Sperm ceti, - - -	℥ij.	Take Spermaceti, -	2 drachms.
Vitel ovi, - - -	j.	Yelk of egg, -	1
Pulv. g. Arab. - - -	℥ij.	Powdered gum Ara-	
Elix. paregor. - - -	℥j.	bic, - - -	2 drachms.
Vin. antim. - - -	℥ss.	Paregoric elixir, -	1 ounce.
Sacch. alb. - - -	℥ij.	Antimonial wine, -	½ ounce.
Aq. font. - - -	℥vj.	White sugar, -	3 drachms.
M.		Mix.	

This is to be used as directed above for the Brown Mixture.

beyond the sweating point ; and by the second, it is prevented from rising to it.

1312. Blisters are sometimes highly useful in catarrh ; but they are very frequently much abused, by applying them when they may not be absolutely required, or at too early a period of the disease. When the latter happens, they are sure to augment fever, and thus increase the congestion of the bronchia. But when properly resorted to, they act as very important revulsives. We think the best place for their application is between the shoulders ; the same spot to which we have directed the leeches to be applied. They are rarely proper to the thorax in simple catarrh, however acute ; but when complicated with inflammation in some other structure of the lungs besides the bronchia, they may render very important aid to the other remedies. Much care, however, should be taken, that the pulse, and heat of the skin, be sufficiently reduced, to bear their stimulation, before they are made use of.

1313. It would seem, that a cold lasts much longer in France than in this country, if the proverb quoted from Laennec have any foundation ; but not necessarily so we imagine, unless the mode of treatment be very faulty indeed. In this country, even when the severity of a long winter has to be contended against, a catarrh with proper management will almost always yield in two weeks, and sometimes even sooner. We are, therefore, no ways disposed to yield to the opinion of Laennec upon this point ; especially as we have abundant experience even in our own person to enable us to declare, that this affection can, not only be much abridged in duration, but, in many instances, cut short.

1314. In order, however, to accomplish either of these very desirable ends, this disease must be attacked either in its forming state, or very soon after it is formed.

1315. If attended to in its forming state, it can very frequently be put a stop to, by bathing the feet for a few minutes in warm salt water at bed time, and taking twenty-five drops of laudanum and as much sweet spirit of nitre, (*spiritus ætheris nitrosi*,) in a little sugar and water, drinking after it a glass of hot lemonade. This simple plan has very frequently prevented a "cold" from fixing itself upon the chest. During, however, any appearance of catarrh, the diet should be strictly antiphlogistic, until it ceases to trouble.

1316. Laennec proposes a plan for the same purpose, but which we cannot feel safe to recommend, however successful it may occasionally be. He says, "my plan is to give to the patient at bed time, an ounce or an ounce and a half of good brandy in double the quantity of an infusion of violets, made very hot

and sweetened with syrup of marsh mallows. This dose is usually followed by a copious perspiration towards morning; but frequently the disorder is cured the same day without any perspiration. If this is not the case, the same plan is followed several nights successively." p. 70.

1317. Dr. Forbes, in a note to this plan of Laennec, makes the following judicious and highly valuable practical remarks. "A catarrh, or *common cold*, as it is called, is of such every day occurrence, and in general of such moderate severity, as seldom to come within the pale of formal medical treatment. The very tolerable amount of its evils, and the confident expectation of being speedily freed from these by the simple process of nature, no doubt render it frequently of long duration, when it might be removed very speedily, and occasion many remedial measures of well known efficacy to fall into neglect. Of this kind is the inhalation of the steam of warm water, conjoined with the internal use of diaphoretics and the application of steam to the surface of the body, formerly recommended by Mr. Mudge, and described in his excellent Essay entitled, "A Radical and Expeditious Cure for Recent Catarrhus Cough." Whoever will be at the expense of procuring his "*Inhaler*," and will take the trouble to use his process at the exact period of the disease, (i. e. at the very onset,) and precisely in the manner recommended by him, will I do not doubt, find therein a remedy at least as efficacious and speedy, and certainly more safe, than the spirituous treatment of our author. But perhaps after all, for those who have leisure for such luxurious medication, and who do not consider such a restrictive mode of cure, as worse than the disease, the safest and surest remedy is to lie in bed and live on slops for a day or two." p. 71.

1318. From the common belief, that a cold will run its course do as you may; and its not incapacitating such as may be attacked with it from attending to their usual occupations; but above all, from the aversion which very many have to reduce the quantity, or to change the quality of their food, very few are tempted, to abridge the career of a cold, however certainly this may be in their power. Yet we feel it a duty, as well as its being a part of our plan, to give our opinion upon this subject.

1319. When catarrh has acquired so much force, that the plan above suggested to arrest its progress, would be either unavailing or injurious, still much can be done to abate its severity, or to shorten its duration. This must be attempted by the observance of a strict antiphlogistic regimen; guarding against exposures of every kind, and by drinking very freely of either of the following demulcent and diluent drinks; flaxseed, or slippery elm bark, or bran tea, barley water, rice water, molasses and water,

or even toast water. This plan should be persevered in, until all arterial irritation cease, which will happen, when the disease is of a mild grade, in about five or six days; after this period the patient may gradually return to his ordinary diet. But if he be in the habit of taking other drinks than water, he should abstain from every species of liquor until cough has entirely ceased. If this do not succeed, the disease will then be of a more acute character, and must be treated as already directed for the active stage of "acute mucous catarrh."

SECT. II.—CYNANCHE TONSILLARIS.

1320. This disease comes on with a huskiness, followed by pain and inflammation of the tonsils and back part of the throat, attended with some difficulty of deglutition, and sometimes with fever. In a short time these symptoms are increased; and from the swelling of one, or both tonsils, there is a great inability to swallow. If the throat be examined at this time, we find the uvula, the pharynx, and the neighbouring parts, extremely red, and excessively tender. In some instances, and especially where the individual has had many preceding attacks, it shows itself as a mere local affection, without fever, or any general constitutional disturbance.

1321. In this form of the disease, we have phlegmonous inflammation, which terminates, usually, either by resolution or suppuration, and sometimes by induration of the glands. But in other cases, it puts on the appearance of erysipelas; and here, instead of red vivid inflammation, with much swelling, the aspect is dark, or purple; with superficial vesicles, or ulcers, of a white or gray colour, resembling ordinary aphthæ.

1322. Commonly, no species of this disease is dangerous, whatever may be the degree of the immediate suffering; and only becomes so, when the inflammation extends to more important structures, as the larynx, and trachea.

1323. The symptoms, however, sometimes run very high; and great suffering is endured; and the tonsils become so enlarged and engorged, as to nearly fill up the posterior fauces.

1324. Deglutition is now extremely difficult, and sometimes altogether impossible, without a repetition of the greatest, and most painful efforts. Under such circumstances it is not unusual for cough to be excited, and drive whatever is attempted to be swallowed through the nostrils. The faucial extremities of the Eustachian tubes, are very apt to be involved in this inflammation; when this is the case, each attempt to swallow is followed by an acute darting pain through the course of the tubes, which seems to terminate in the external ear.

1325. One of the most troublesome symptoms against which the patient has to contend, is the free secretion of a very tenacious mucus; this quickly accumulates in sufficient quantity to force the patient to swallow it; in which attempt, the pain becomes so excessive as to produce a convulsive action of almost every muscle in the body. This secretion is particularly troublesome when the patient attempts to sleep—so much so indeed sometimes, as almost to preclude the possibility. To obviate this as much as possible, the patient should make his mouth so depending, that it may flow out before it accumulates in such quantities as will oblige him to swallow. The whole of the muscles of the fauces and tongue, partake so much of the inflammation, that it is impossible sometimes to protrude the latter; the effort is always attended with pain.

1326. The tongue is quickly incrustated with a thick, very white coat. The fever which sometimes accompanies the cynanche tonsillaris is sometimes very high; at others very much less than we should suppose would attend an inflammation of such extent and apparent violence. With those who are liable to attacks of sore throat, the fever for the most part is moderate; indeed in some instances it seems to decline in proportion to the frequency of the occurrence, as if the system had lost some portion of its sympathizing powers. We however know of but few diseases which leaves so much debility in the same time behind it. This may perhaps in part be accounted for, from the entire impossibility there is sometimes, of taking down nourishment.

1327. This disease is sometimes very obstinate; the inflammation not advancing to suppuration nor receding by resolution—this is especially the case with those who may have cynanche to supervene upon enlarged tonsils; or in those, who have the lymphatic temperament strongly marked.

1328. Cynanche tonsillaris is almost exclusively produced by exposure to cold. There are many persons peculiarly liable to it; and a predisposition seems to be especially given, by former attacks; and hence great caution is required to avoid the exciting cause.

1329. The practice of washing the throat every morning with cold water, is said to be an excellent preventive; and we know that much advantage has been derived from gargling the throat every morning and evening with a solution of alum, for the same purpose.

1330. The treatment of this disease divides itself into that which is proper in its forming state; and into that proper for the subsequent stages.

1331. If we are called very early, and before diseased action

is completely established, we may frequently check the attack, by a stimulating gargle; such as an infusion of Cayenne pepper;* and by rubefacients, such as the spirit of turpentine, or mustard and vinegar applied to the external surface of the throat, until the skin becomes inflamed; or even by warmth, when the attack is very recent and mild, as a piece of flannel or worsted stocking, tied around the neck. But should these fail, we must change the practice, and endeavour to reduce the inflammation by evacuations. An emetic is here exceedingly efficacious; generally resolving the swelling, and suppressing the fever, if it exist; this should be succeeded by a mercurial purge, to be worked off by a saline laxative.

1332. If necessary, we must next resort to blood-letting, and especially leeching the throat; but the state of the pulse must always govern the use of these remedies; especially, the lancet; but leeches may be used with advantage, when the pulse may not require bleeding from the arm. In many cases it is not at all demanded; particularly as it is rarely productive of as much utility, as might be expected. Yet, where there is great vascular action it must be employed, and repeated according to the emergency. The topical bleeding, by cups, or leeches, is generally more effectual; and especially, where the affection is local, or the system somewhat reduced. In violent cases, or even in cases threatening to be violent, blisters should be employed; and this as early after the leeching and other depletion as possible.

1333. Gargles, in this state of the disease, are always detrimental; as they aggravate the inflammation, by the violent and inverted action which they induce. As a palliative, a mixture of equal parts of nitre and loaf sugar finely powdered, occasionally put on the tongue, and as it melts, allowed to trickle over the inflamed surfaces, and swallowed, is sometimes highly serviceable; as is also the steam of water, or vinegar and water, applied by Mudge's inhaler, or as a substitute, a common teapot.

1334. But should the disease obstinately run its course to supuration, (which may be known by the surface becoming of a yellowish hue, and by a throbbing, and a disposition to rigour,) they may in urgent cases, be opened. With this view, emetics were formerly employed. But the practice is painful and unnecessary, as it may be readily done by puncture. Having discharged the matter, mild detergent gargles, as sage tea, honey,

* Take a tea-spoonful of Cayenne pepper, pour on it a gill of boiling water; stir, for a couple of minutes, and then let it settle clear—let the throat be gargled with a portion of it every four hours.

and vinegar, should be directed to cleanse the parts, and to dispose them to heal kindly.

1335. As regards the erysipelatous species of the disease, the treatment is somewhat different. We rely more on topical bleeding, and the vesicatory applications; and where aphthæ or sloughs appear, on stimulating gargles; and, in the event of extreme debility supervening, the system is to be supported by bark, wine, the carbonate of ammonia, and whatever else enters into the treatment of putrid sore throat.

1336. If due attention, however, be paid to the forming stage of this disease, it can very frequently be arrested in limine; for this purpose stimulating external applications are for the most part efficient. The spirit of ammonia, of turpentine, or a mixture of the flower of mustard and vinegar, are the best. They should be applied immediately over the throat, and should be permitted to remain, until they produce decided irritation; they may be repeated when this effect disappears.

1337. To such children as are subject to this affection, the above directions are highly important; and subsequent returns may often be prevented in those that can gargle, by a persevering use of alum water, or an infusion of nut-galls, in the proportion of half an ounce of the powder to a pint of boiling water; and then simmered for a few minutes. This must be strained off, and used early in the morning and on going to bed. We have found the following better, in warm weather, than the one just suggested. Pour half a pint of brandy or whiskey, and as much water, upon an ounce of powdered Aleppo galls, and shake them several times a day, for a few days—let it then settle, and pour off the infusion for use. With a quantity of this the throat should be gargled the first thing in the morning, and the last at night.

SECT. III.—CYNANCHE TRACHEALIS, OR CROUP.

1338. It is not essential to our purpose to inquire whether this disease was known to the ancients, or is one of comparatively modern origin. It is now sufficiently ascertained, that it is one of too common occurrence in this as well as many other countries; and also that it is one of too frequent danger.

1339. This complaint is almost altogether confined to the period of childhood, and is most frequent in infancy, or before the fifth or sixth year. It is affirmed, particularly by Cullen, that this disease rarely attacks infants till they are weaned; and that there is no instance of its occurring in children above twelve years of age. As a general rule this may be correct; but our experience has furnished us with a number of exceptions. We

have seen it in its most formidable shape, in children at the breast; and we have witnessed death from it in the adult.*

1340. Children of a florid complexion, and enjoying high health, and especially those inclined to be fat before two years, are more obnoxious to it than those of an opposite temperament. It is a disease of more frequent occurrence in some situations than in others; and those which are near waters of great extent are more obnoxious to it than children in inland situations; in a word, where a cold and moist air unite; and especially when it suddenly alternates with a dry warm air.

1341. Nothing perhaps can be more satisfactorily proved, than the agency of cold, moist air, in the production of this complaint, especially in the spring and fall. So much so indeed is this the case in certain situations, that the mothers of children who are disposed to this disease, dread the prevalence of that wind which shall bring with it, both. Thus in this city, a north-east wind in early spring or fall, is almost sure to produce, or reproduce this complaint, in those who are disposed to it. But with such, almost any sudden transition, which too suddenly arrests perspiration will be attended by the same consequences.

1342. Mechanical causes have produced a disease having all the characters of croup from other causes; thus Mr. Balfour informed Dr. Home, that he had "attended a child in a disease, which from the similarity of voice appeared to him to be croup. The child died. When opened, a piece of shell which the child had sucked in with its breath was lying across the trachea, about an inch below the glottis, and the membrane was inflamed and dry." "Here," continues Dr. Home, "was an artificial croup raised, from which we may evidently perceive how the voice is altered in the natural disease."†

1343. This disease attacks in one of two ways; 1st, by a hoarseness, which is perceived upon coughing, and which may continue without increase, for even several days, or until perhaps the sudden application of some exciting cause; such as a change in the temperature of the air.

* "The croup chiefly prevails in children from a short time after birth until puberty, attaching itself to particular families." Cheyne, p. 15. To the truth of these observations, we have frequently borne witness. But we have seen this complaint after puberty, and in adult age, though Dr. Cheyne says "I have heard of no example of this disease, after the fifteenth year." He says further, "I have imagined this to depend on the change which happens in the constitution at puberty, and perhaps in a more peculiar manner in the change which the upper part of the windpipe undergoes." This is ingenious, and probable; and it may be owing to this circumstance, that it is a rare disease in adult age; but that it occurs even at late periods of life, is certain. We have attended a lady within the last six years, who is now upwards of forty, several times, (certainly five,) with threatening attacks.

† Inquiry into the Nature and Cure of Croup, p. 49.

1344. For exposure to cold and damp, or a check to perspiration, calls forth some of its more formidable symptoms; as more or less difficulty of breathing; an increase of cough without expectoration and fever; this form is longer running its course, than the one about to be mentioned, but is less obedient to the powers of medicine.

1345. Or secondly, it may attack with the most alarming suddenness where no such onset was suspected. When it is thus prompt in its appearance, it menaces life from the moment of its invasion; and if its terrible march be not very speedily arrested, it but too frequently triumphs, in death.

1346. But whether the croup insidiously steals upon its victim, or suddenly threatens it; the latter part of the evening after a short, but rather disturbed sleep, and about two or three o'clock in the morning, are the most certain periods for it to declare itself—hence, the frequency of our first attendance during the night.*

1347. With the exception of hoarseness, we have never observed any premonitory symptoms to this disease; for we cannot, with propriety, consider a slight catarrhal affection, as properly belonging to this complaint, though it may occasionally precede the croupy symptoms. Cheyne's account is rather poetical for ordinary occurrence; or at least we cannot acknowledge we have ever witnessed, (and our own family has furnished us unfortunately with but too many examples,) that the patient "shuns his playfellows, and sits apart from them, dull, and, as it were, foreseeing his danger." p. 16. On the contrary, we have seen many instances, where this disease has attacked children, and that with great violence, after their having spent their evenings in high mirth, and merriment.

1348. It must, however, be confessed, that we have known children indisposed, and dull, from catarrh, previously to the attack of croup; but, in these instances, the latter was not anticipated from any of the then existing symptoms; consequently, this previous condition did not necessarily belong to, nor properly forerun, the latter. We believe it to be familiar to almost every practitioner, that croup may supervene upon catarrh; not

* Dr. Cheyne says, "The disease generally comes on in the evening after the little patient has been much exposed to the weather during the day, and often after a slight catarrh of some days standing." p. 15.

The evening is the most frequent period for an attack of this complaint; but for this purpose, it is not necessary, that the "little patient" shall have been "much exposed to the weather;" for we have often witnessed this disease from the mere prevalence of a north-east wind, and where, in consequence of this wind, every precaution has been taken to guard against its influence, by confining the child, and keeping it warm. We have elsewhere declared, that catarrh is not a necessary forerunner of this complaint.

perhaps, as a consequence, ever, but as a coincidence: for catarrh is owing to a peculiar condition of the mucous membrane of the nose, and windpipe; and for croup to form, or grow, out of this affection, it will at least require an alteration of that condition, and not a mere increase of its force; for the severest catarrhs we witness—catarrhs, which require not only prompt, but extremely active treatment, croupy symptoms do not make their appearance as a necessary consequence.

1349. In this opinion we are happy to find ourselves confirmed by an observation of the celebrated and accurate Laennec, whose work upon the diseases of the chest has been lately most ably translated by Dr. Forbes. He says, p. 120, “the false membrane which so frequently forms on blisters, is, of itself, sufficient to prove that it is much less to the degree, than the nature of the inflammation, that we are to attribute this concretion or coagulation of pus in certain cases. Indeed, the cause of it is much more probably to be attributed to some peculiar disposition of the fluids, than to any affection of the solids.”

1350. From this it would appear, that it is not sufficient for the production of croup, that the mucous membrane of the windpipe be merely inflamed, but that it requires a modification of inflammation to induce it.

1351. It may be further observed, that during the prevalence of catarrhal affections, croup is more rife than at other periods; not that the one produces the other, but because during such periods as the spring and fall, or the very moist and open weather of winter, there is a stronger disposition created to these diseases; and that they have, at one, and the same time, the same exciting causes.

1352. We have uniformly observed the insidious approach of this complaint, to be less under the controul of remedies, if its first stage be neglected, than when the attack is sudden, however violent that attack may be. This is doubtless owing to its first symptom, hoarseness, being neglected. For this reason we would wish to put parents upon their guard, whenever this symptom take place; by assuring them from long experience, that it is one of a most dangerous, and threatening character. So attentive are we to this forewarning in our own family, (and we have taught others to be equally vigilant,) that it is attended to immediately, and opposed by most active remedies; and we have every reason to believe, that, by the means we shall recommend for this purpose, we have stopped this formidable complaint in limine, in very many instances. It is true, a hoarseness passes off sometimes, without much mischief; but this is not the hoarseness of croup; for this, we believe, never takes its leave spontaneously.

1353. The hoarseness which disappears spontaneously, is very distinct from that of croup; the difference, however, cannot well be conveyed by words, unfortunately sometimes, for those who may be assailed by it.* It may, however, be observed, that there is a certain clearness and distinctness in the croupy sound, that does not attend the other; the one, (the croupy,) seems as if it issued from a metallic instrument; and the other from one of a less vibrating material. The ear, however, by habit, may learn to distinguish between them, and when once instructed, it never loses its discriminating tact.

1354. We may also observe that the evanescent hoarseness is almost always accompanied by a little soreness of throat; while that of croup, we believe, is never. Again, the first is perceived in common speaking; whereas that of croup is only discoverable in the commencement, by coughing. Lastly, some little pain and soreness are observed about the posterior fauces after coughing, which never happens in that of the croup. It may not however be amiss to observe, that a mere loss of voice must not be mistaken for croupy hoarseness, as we have known it to be on several occasions, to the great terror of an anxious parent.

1355. In this, and perhaps every other country where croup is of frequent occurrence, every sudden difficulty of breathing, accompanied with cough, in children, is mistaken for this disease. Thus, the acute pituitous catarrh is often mistaken for it. Laennec says "this disease is characterized by an extreme oppression attended by a copious pituitous expectoration. It sometimes begins as a common cold, but after a few hours, or even minutes, its severe character is soon declared, by the violence of the cough, the intensity of the dyspnœa, and oppression, the lividity of the face, marks of cerebral congestion, disordered circulation, and coldness of the extremities. In children it is sometimes mistaken for croup."†

1356. But it may be proper to advise, whenever hoarseness takes place, not to trust too much to the discriminating powers of the ear, for its nature; but instantly to proceed upon the supposition that it may be of a dangerous kind, especially as the remedies employed for the one will most certainly relieve the

* Dr. Ferriar observes, (Med. Hist. Vol. 3, p. 137,) "children who are subject to croup, are sometimes seized with the deep, barking cough, which will increase to such a degree as to create much alarm, about the usual time of the dangerous exacerbation; yet it will decrease again, and at length go entirely off, without any other remedies than common demulcents. Cases of this kind, I suspect, have been described as genuine paroxysms of croup, and very trifling methods of cure have been recommended, in consequence of their apparent efficacy in the spurious croup, which always cures itself."

† Laennec on the Chest, Forbes's Translation, p. 80.

other. It is therefore erring on the safer side to treat it as if it were of a mischievous character, though it might have passed away without such treatment.

1357. It would seem necessary to the well understanding of the progress of croup, and its mode of treatment, that it be divided into three stages;* 1st, the forming stage; 2d, the completely formed stage; and 3d, the congestive stage.

Of the First Stage.

1358. We have already remarked, that one of the first and most *certain signs* of this complaint being about to take place, is a peculiar sonorous hoarseness, when the patient coughs, but which at this period does not affect the speaking voice; this peculiarity exists for a longer or shorter time, without much increase, even for several days in some instances; while in others, the interval, or stage of formation is very short, but very decidedly marked. This hoarseness may in some instances be accompanied or preceded by catarrhal symptoms; but not necessarily.† In this stage when not attended by catarrh, we find for the most part the circulatory system undisturbed, and the respiratory not confined, nor even hurried. The child in general is as cheerful as usual; and its appetite and digestive powers are undiminished. In a number of instances where the disease was making an insidious attack, we have seen children exert themselves even pretty violently, without creating any uncommon

* Dr. Cheyne divides this disease into but two stages; 1st, "the incomplete or inflammatory;" 2d, "the complete or purulent." In the first, "the membrane is not yet formed; in the second it is fully formed." This division does not comprehend the whole history of the disease; for the forming stage is one of the greatest importance in the treatment of the complaint, and therefore merits, we conceive, the distinction we have given it. Besides, we cannot regard Dr. Cheyne's second stage as representing this disease in its complete form; since the whole of the phenomena of that stage are but consequences of the previous, or his "incomplete or inflammatory." And he himself admits this, in several places of his lucid and excellent essay.

† "The inflammatory affection of the larynx is doubtless sufficient to account for the alteration which takes place in the sound of the voice and cough." Cheyne, p. 22.

We believe there is in most instances an intermediate condition of the larynx, in the commencement of this disease; which is a degree of excitement in the part, accompanied by a little thickening of the mucous membrane; but which does not absolutely amount to inflammation; for could not hoarseness be produced by any thing short of inflammation, there could not be that species of croup, which Dr. Ferriar and Dr. Cheyne himself admit the existence of, namely, the "spurious croup," (see note to par. 1353.) We are further disposed to believe in this condition of the trachea, or larynx, in consequence of the very speedy removal, in many instances, of this symptom, when sufficiently and promptly attended to, by the remedies recommended for the first stage of this complaint.

hurry in the breathing, or occasioning in it the slightest embarrassment; yet these very children, in the course of a few hours, were reduced to the last extremity; and some of them did not escape with life.

1359. We think we have observed, however, in this forming stage, especially in the insidious attacks, the hands to be more than usually cool; the face to be rather unnaturally pale; and the skin to resemble in a small degree, the cold stage of an intermittent, but not attended by a sense of cold: this state of collapse remains for several hours in some instances, before the system is roused to reaction. But where the attack is sudden, we are by no means certain, that this condition always precedes the febrile state, which so frequently is awakened, and made to accompany this complaint.

1360. During this period however, the mucous membrane of the nose is observed to be affected; since, the secretion in the nostrils is either arrested altogether, or very much diminished; and continues to be so during the whole course of the disease, unless it terminate favourably. The cough is short, dry, and sonorous; or if any thing be expectorated, it is thin and whitish, and in very small quantities.

1361. If the throat, or fauces be inspected, nothing unusual, (at least as far as we have observed,) shows itself. The back part of the tongue, is perhaps more loaded than is natural, but it is far from being remarkable.*

1362. After the continuance of the above symptoms for a longer or shorter time, a change takes place, by an aggravation of all of them; and at the same time, others are added; and these will constitute the

Second stage, or that, in which the Disease is completely formed.

1363. At this time we observe the hoarseness to be increased, and to affect the speaking voice;† that is, the tone of hoarseness is evidently deeper, more ringing, and betrays itself in every attempt to speak; the cough is more frequent and the spells longer: a degree of exhaustion, attended by an increase of the difficulty of breathing, follows each effort; the face becomes

* "When in the urgency of the attack, the fauces and neck are examined with a view to investigate the cause of the symptoms, (hoarseness, &c.) even when a sense of heat is complained of in the throat, the tonsils are not swelled, and but little inflamed." Cheyne, p. 18.

† It may be remarked as a general rule, that where the voice becomes suddenly affected by hoarseness, which discovers itself in speaking, and without being so in coughing, that it is not the hoarseness of croup. This kind of hoarseness, however, is more common to adults than children.

flushed during the coughing; but generally subsides as the circulation becomes more equal, after the exertion, but leaves the cheeks, or perhaps only one redder than natural.* The circulation is now much hurried in most cases; at other times it is very little disturbed; when this latter is the case, the face is seldom flushed, and the hands and skin of the extremities are rather below the natural standard of heat. The child is drowsy, and falls into frequent, but disturbed slumbers, from which it is generally roused, by the most heart-rending cough, and an increase of oppression. The child raises itself up, if sufficiently old to do so; or if not, elevates its head, with a desire more freely to gain air. This state of things does not last long; for if the progress of the disease be not arrested here, it marches with rapid strides to the

Third or Congestive Stage.

1364. At this period, the *cough* is attended with some expectoration of a thin frothy mucus, which affords no relief; it is more frequent in its recurrence, and more permanent in its duration; sometimes so much so as to threaten strangulation—the child becomes much exhausted by these efforts, and throws itself back as if in despair, but from which it instantly springs, from the feeling or dread of instant suffocation. It cannot now lie down; and it either throws its head much in advance, as in asthma, or bends itself very much backward; or it finds no relief but in a supine position, and that to all appearance the most unfavourable to easy breathing. It is restless in the extreme; and alternately tries every position, without finding relief from any.

1365. The face is no longer flushed; a dark lividity takes its place, which sometimes spreads itself, even to the neck; the lips partake of this change; and the gums become pale and white, while the tongue is not unfrequently blackish, as if the blood were retained in it by a ligature. The forehead becomes shining, and the skin looks as if it were tightly stretched over it—it is wet with cold perspiration, as is now indeed almost every part

* There cannot we believe, exist a doubt, of the condition of the mucous membrane of the trachea at this time—every thing would seem to declare it to be in a state of active inflammation. The formation of a deciduous membrane, which is sometimes thrown up, or after death proved by dissection to exist, and even the remains of turgid vessels in this part, all announce inflammation of an active kind to constitute the proximate cause of this disease.

The following is Laennec's "Anatomical Characters" of croup. "Croup is an inflammation of the mucous membrane of the air-passages, with exudation of plastic pus, (coagulable lymph,) which becoming concrete at the very moment of its formation, lines the surface of this membrane to a greater or less extent; when this false membrane is removed, the subjacent tunic is found of a deep vivid red colour, occasionally livid, and somewhat thickened." p. 119.

of the body; the hands death-cold, and black blood is settled at the extremities of the fingers and nails.

1366. The pulse is small, frequent, fluttering, and contracted. The heart beats with violence, nay sometimes audibly. The auxiliary muscles of respiration, are now called into requisition, and this process seems only maintained by their aid; a deep hollow is made immediately below the xiphoid cartilage, most probably by the severe contraction, or efforts of the diaphragm; and the action of the heart is distinctly seen, even at a distance from its seat.

1367. Though the cough is now more frequent, and the oppression much increased, the hoarseness is neither so great nor so sonorous. It is now almost an entire loss of voice, and the child when it speaks, seems to employ for this purpose a loud whisper. Even when it coughs, the voice is less harsh; or rather it has lost in a degree, that appalling, brazen, vibratory sound, with which the two first stages are attended. This change of tone of the voice has but too often misled the inexperienced ear to the belief, that the disease was yielding; and thus have given rise to hopes, that were but too soon to be blasted forever.

1368. This cessation of the croupy sound, is no less remarkable than delusive; for it suggests to the inexperienced, the hope of improvement just mentioned; we confess we were once betrayed into a similar belief, only to be more severely disappointed—but we are never imposed upon now—we mention this, because it is a block over which all young practitioners stumble. Dr. Watt we think accounts for this change satisfactorily; he says, “it has been remarked by some of the writers on croup, that in various cases, the disease proves fatal without having any thing of the croupy voice, and yet the adventitious membrane is found in a more or less perfect state. In others, where the croupy voice was completely formed, it has gone off some time before death, and yet the membrane was found entire.”

1369. “In the first instance, the air-cells and bronchiæ were probably affected as soon or sooner than the trachea; hence the difficulty of producing a vacuum, increased with the difficulty of admitting air; and thus the one, always being in proportion to the other, the patient might appear in danger of suffocation, but the symptoms of strangulation never could be the consequence. In the last instance, we have only to suppose the inflammation began at the top of the windpipe, and gradually extended downwards. At the commencement of such a case, signs of strangulation would appear; because the cells could take in more air in a given time, than the glottis could admit; hence the stridulous croupy sound in inspiration. But by and by, as the disease extended downwards, and the accumulation of mucus took place,

the difficulty of producing a vacuum came to equal or exceed the difficulty of admitting air, and then the croupy stridulous noise ceased, as the noise ceases, on admitting air into the vacuum of an air pump, when the equilibrium is nearly restored." p. 136.

1370. Thirst oftentimes becomes so intolerable, as to render the demands for drink both frequent and clamorous, though every attempt to gratify it, is apparently at the risk of suffocation. The countenance is now anxious beyond expression; the eyes become most piercingly brilliant, and beseeching—and eloquently implore a relief, which neither affection, nor science, can afford; and the poor sufferer expires, with a look, full of supplication and anguish.*

1371. This disease runs its course variously; sometimes it lingers for days, while at others, its career is finished in a few hours. This variety in termination will depend upon the constitution; upon the period at which remedies were applied; upon the nature of the remedies, and their power or influence upon the system.

1372. Dissection proves this disease to kill in many instances by suffocation, from a mechanical cause; at other times, no such obstruction can be found—therefore pathologists declare spasm to be the cause, where the mechanical one is not present. This by some has been extended, even to the formation of a distinct species of croup; namely, the spasmodic; a kind we have never witnessed. By others, this has been modified; and the pathology of croup made to consist in inflammation and spasm united. We do not believe in the presence of spasm, in either of the two first stages of this complaint; it may take place, and probably does, sometimes in the last.

1373. "Dr. Marcus, of Bamberg, in Bavaria, looks upon all fevers as inflammation of some one organ or other, and as entirely seated in the arterial system, regards croup as a local inflammation alone, utterly independent of spasm, which neither exists here nor in fever of any kind."†

1374. Some have disputed the formation of a membrane within the trachea; but it can only be by those who are not in the habit of investigating diseases by dissection. We have seen it more than once, and of course we are convinced of its existence. Others who will not venture to deny the presence of a foreign body within the trachea, deny it to be a membrane; they declare

* We have sometimes seen, a short time before death, the little patient lie on its back apparently resigning itself to a fate, against which it could no longer struggle, and eventually expire, and this with a complacency that would create the belief, that its sufferings had terminated, before death had relieved them.

† Good's Study of Medicine, Am. Ed. Vol. II. p. 235.

it to be nothing but inspissated mucus, and not a membranous product. At this day, there can be nothing new in the declaration, that if lymph be poured out from vessels in a certain state of action, upon either exposed surfaces or within cavities, but especially, mucous surfaces, that it will form membrane; the pleuræ and the peritoneum also furnish almost daily examples of this kind.* This false membrane extends from below the larynx to the bronchial ramifications; and we once saw it within them.

1375. Laennec, p. 120, says "the false membrane of croup corresponds exactly with the form of the canals which it covers. Its thickness is usually somewhat greater in the larynx and trachea than in the bronchia, and varies from less than half a line to a line. Its consistence is that of boiled white of egg, but this usually diminishes towards its extremities, so that it becomes sometimes in this situation scarcely more solid than the thick phlegm of catarrh. It is of a white colour with sometimes a shade of yellow, and is almost entirely opaque."

1376. Dr. Watt has given us an account of the result of his observations on the condition of the parts both directly and indirectly involved in this disease. He says, "in dissections that have been made in croup, it is always mentioned, that besides the adventitious membrane at the top of the windpipe, there was found a great quantity of semi-purulent fluid in the under part of the trachea, or in its more minute ramifications. Now I presume," the Dr. continues, "that the accumulation of this fluid is *oftener*, the immediate cause of death, than the membrane itself; and that it is *always* so, when the symptoms of strangulation and crowing disappear before the fatal event." p. 139.

1377. Connected with this subject, the Dr. mentions another curious, and to us, novel fact. "In both of the two cases I have related, it is mentioned, that the surface of the lungs were irregularly covered with whitish spots, slightly elevated. On speaking of this circumstance to Mr. Allan Burns, he mentioned, that it was not a very uncommon appearance; he had met with it often." "It seemed," he remarked, "to be always connected with an inflamed state of the lungs themselves, or of the passages

* When this substance is chemically examined, "the secretion appears to consist chiefly, if not entirely of the gluten or coagulable lymph of the blood, diluted with its serosity and copiously combined with that peculiar substance of the blood which has received the name of fibrin."—Good's Study of Medicine, Am. Ed. Vol. II. p. 234.

"It is a little singular that children should be chiefly subject to its attack, at whose age fibrin is not peculiarly abundant, and whose blood contains comparatively but a small portion of azote, which in fibrin is so large a constituent."—*ib.*

leading to them. It was commonly, if not always, to be found in subjects who had died of croup." p. 140.

1378. From what has been said, it will be evident, that nothing but the use of very active remedies can arrest the progress of this disease; and for them to be availing, they must be employed sufficiently early, to prevent the inflamed lining of the trachea from relieving itself by effusion. For when this happens, the case for the most part, is hopeless; though some few instances have occurred, where recovery took place after its formation—but their rarity, only shows the little we have to hope at this stage, and the importance of early attention to this disease.

1379. It is now so generally admitted that this is a local disease, and one consisting in an active inflammation of a highly important part, that there is scarcely any dispute as to the general mode of treating it, though there may be some variety in the detail, and the agents intended to fulfil the same obvious indications. Therefore, with a view to the better illustrating the particular mode of treatment, we shall follow the stages we have made this disease to consist of, and shall begin with the mode of treating the

First Stage.

1380. If proper attention were paid to the timely application of appropriate remedies in the forming stage of croup, we have every reason to believe, that this complaint could be stopped in limine, in nineteen cases out of twenty. It is to the ignorance of what a hoarseness, when it first shows itself, may lead to, that this obvious and almost certain symptom is neglected; and to this neglect, must be attributed, the often fatal termination of croup.

1381. A sufficient experience justifies us in the declaration just made; and the same experience will, we trust, screen us from the imputation of becoming alarmists, when we declare, that no hoarseness in children can be neglected, but at the risk of life.

1382. We can call to mind but too many instances of fatal issue where this friendly warning was unheeded, because its tendency was not understood. Our anxiety to abridge the ravages of this terrible disease, has led us to dwell upon this point longer than would be necessary for the mere medical reader; but we hope he will excuse us for cautions, which though not necessary to him, may be very important to others, who may honour this work with a perusal.

1383. It has been our misfortune to have witnessed but too much of this disease; and unhappily too much in our own imme-

diate family. We were early instructed in all its phenomena; and but too sorely taught its deadly tendency. Our misfortunes made us vigilant, and tremblingly apprehensive to every thing connected with this disease, especially its formation.*

1384. But perhaps, we have derived advantages from our losses; and most happy shall we be, if they can be made subservient to the general good.

1385. For many years nothing could exceed our horror, when called to attend a case of croup—for our too faithful ears could not forget, the appalling sound of its breathing; alas! they were instructed, by instances of such endearment, that memory was almost a curse.

1386. We were thus forced to a knowledge of the rise, progress, and issue of the croup—would we could add, we were equally well instructed in the management of all its stages—to this however we make no particular pretensions; though we think we have arrived at some certainty in arresting its march. Our particular horror of croupy hoarseness, led us necessarily after a time, to the very early application of remedies for its removal—hence for the last twenty years we have never suffered it in our own family, to exist a single hour, without an effort to stop it, and so far always successfully.

1387. As this disease most commonly attacks in the night, we have ever at hand, the remedies about to be mentioned, that a moment may not be lost in their application. It is therefore

*The ear of one who has lost a child with this complaint, becomes so extremely sensitive, that it instantly gives the alarm, so soon as hoarseness is perceived, which sometimes lead to an interference, that would perhaps not be justified upon any other occasion. To illustrate this, and to show how the feelings may be impelled under such circumstances, we will relate an anecdote which befel ourselves. Passing a house, towards evening, in one of our streets, our ears were assailed by a hoarse cough, which proceeded from a shivering little boy of about three years old, who was at the door, but which was shut against him.

He appeared very cold; it was a drizzly evening, and the month was November. At this time our loss of an only child with croup was recent; and we were labouring under all the wretchedness such a loss could inflict, and of course, were peculiarly sensitive to any thing which reminded us of a disease which had created for us so much misery. We knocked at the door, and begged to see the mother of the child; the person before us proved to be the one we wished to see. We represented to her the dangerous situation her little boy appeared to be in, and begged she would immediately send for her family physician, to visit the child, and advised what we judged proper to be done, until he should arrive. The mother laughed at our fears; said it was nothing but “a little cold the child had taken,” and declared “he would be well enough in a day or two, without any doctor stuff.”

We took our leave; but feeling interested for the child, we went next day to inquire for him; and was told by a next door neighbour, that he had died early that morning of “hives;” our feelings can be better imagined, than described.

*Why not then, when the physician
comes with the stethoscope
and finds*

our constant habit, the instant we observe the croupy sound, to inflame the external throat by the application of the spirit of turpentine, hartshorn, or mustard and vinegar. This we repeat if the first has not subdued the hoarseness, so soon as the rubefacient effect has subsided; for it may be proper to observe, we do not carry the stimulation to blistering. In aid of the external applications, we administer, in doses suitable to the age of the child, "the compound syrup of squills," or "Coxe's hive syrup," as an expectorant, or if necessary, as an emetic.

1388. If the hoarseness do not yield to the turpentine or to the expectorant doses of the syrup, we urge the latter by quickly repeating the dose, to an emetic effect; but this is rarely necessary, if the complaint has been taken early; or if the throat has been well inflamed. For we can most truly declare, we have very often seen this disease subdued in an hour or two. But should the hoarseness not disappear, though much diminished, we continue the use of the syrup, until it does. Should the bowels be confined, we give a dose of castor oil, in aid of the general intention.

1389. With the same intention, we regulate the diet, or rather, make it consist of barley water, or flaxseed tea; we confine the patient to an atmosphere of moderate temperature, and most sedulously guard him against exposure, or a draught of air. The throat must be protected by a piece of flannel, or some other warm covering, after the turpentine or mustard has been removed.

1390. It is truly astonishing, with what certainty this plan arrests this disease, in by far the greater number of cases. An experience of many instances fully justifies our commendation of it. We therefore earnestly advise every mother, and especially those who may have children subject to this complaint, to have immediately at command, the articles just mentioned, and to employ them, as just directed, the instant hoarseness may appear. If this be faithfully attended to, we shall rarely have an opportunity to prescribe for

The Second Stage.

1391. It may however happen, that the plan just suggested may not be availing; that the proper time for their application has been lost; or that we have not seen the patient until the second stage has been completely formed; in either of these events, we are obliged to prescribe for the case as it presents itself. We shall find the system in the second stage, in one of two conditions; namely, 1st, where the disease is completely formed as regards the state of the trachea, but without the arterial system

being much affected; or, 2d, where the action of the arterial system is much exalted, in consequence of the inflammation of the trachea.

1392. These two conditions, in our opinion, require some difference in the mode of treatment; and first of that condition, where the blood-vessels of the system at large, are not much affected.

1393. In this case, the force of the disease is mainly spent upon the organs immediately concerned in respiration; hence the cough is more frequent, nay sometimes almost incessant; the hoarseness less deep but more sonorous, and vibrating; no expectoration, or in a very trifling degree, and that of unconcocted serum, the discharge of which, affords no relief. The face for the most part, rather pale, or partially flushed; the nostrils very dry; the temperature of the hands and skin, generally rather below the natural standard; the eyes somewhat blood-shot; the pulse frequent and small; the respiration laborious, and every hour becoming more and more so.

1394. In this situation, we have thought, the remedy so exclusively relied upon by many, namely, blood-letting, always to be injurious, or certainly never beneficial—we therefore cannot, agreeably to our present impressions, recommend it; since under such circumstances, we never now employ it, either generally or topically.

1395. We always commence the treatment, with stimulating applications to the throat; and quickly administer a brisk emetic of the tartrate of antimony; or should it be immediately desirable to procure evacuations from the bowels, we combine with it liberal doses of calomel, according to the following formula, for a child of two years old or rather more.

R.	Tartrate of antimony	-	-	-	gr. ij.
	Calomel prepared	-	-	-	gr. xij.

These to be intimately mixed and divided into eight parts—one of these to be given every twenty minutes, or half hour, mixed in a little thin syrup, until an emetic, and cathartic effect be produced. Should it prove pretty powerfully emetic, we make the intervals longer; that is, once an hour; and more seldom in proportion to the effect, until the bowels are freely moved, or even purged, or we vomit with full doses of the hive syrup. With this article we become constantly more and more satisfied—for if our observations do not deceive us, it exerts a much more satisfactory influence than any other emetic we have ever employed. Does the honey give any valuable power to the tartrate of antimony? (We have given a formula for this syrup, in our chapter on Hooping-cough.)

1396. After the medicine has operated freely, we order the

hive syrup in suitable doses, every half hour, or hour, or more seldom, as the effect may be more or less ample. Should the disease not have yielded to this discipline, we give calomel in pretty large quantities, every two hours, as long as the bowels will bear it, without being too much purged; always recollecting that the expectorant doses of the hive syrup are not to be discontinued, without there is much nausea.

1397. If the above remedies make an adequate impression upon the disease, an abatement of all the unpleasant symptoms will take place, and give us some assurance of a favourable issue. In the condition of the system now under consideration, we must not neglect to observe, that we reckon upon the favourable signs, a greater warmth of skin, with a slight disposition to perspiration, and an increase of force, and vigour in the circulating system; for when these take place there is less risk of its running on to the congestive stage, or at least this period is delayed. Besides, this change is an evidence of the disease being now less concentrated, and that the system can now bear further depletion, with advantage, should it be judged necessary. This is so decidedly the case sometimes, that we can with much profit to our patient, abstract blood, either from the system generally, or from near the parts, by cupping. In a word, the disease is now converted into the second condition; or where the arterial action is much exalted.

1398. In this second state of the disease, the symptoms are rarely so appalling, as in the first, though of the same general character. The disease is less marked, and we consequently, have a more open enemy to deal with. In this condition we almost exclusively rely upon blood-letting to make a first and favourable impression; and there are few who have not witnessed with what promptitude, and success, this is sometimes effected. The bleeding to be successful, must be carried to a sufficient extent; that is, until it makes a decided impression upon the pulse; or until it flutter under the finger, or a disposition to syncope discover itself.

1399. Some have advised that the blood should be drawn from the jugular vein; there may be an advantage in this, that our present experience does not recognise; certain it is, we should not hesitate to select this part, were we left entirely to ourselves, since its nearness to the diseased parts, would lead to the belief, that they might more certainly and speedily be relieved by it. But to make choice of this vein as a general rule to bleed from, we should have much prejudice to contend with; more perhaps than the selection is really worth—but at the same time we would recommend that this part should not be lost sight of, in certain ferocious cases, where life may depend upon the difference of

influence, that the bleeding from one part rather than from another, may produce.

1400. The repetition of the bleeding, must be governed by circumstances; for bleed we must in some cases, again and again, if the system reacts with force, and the pulse be found of difficult reduction. But here we would wish to caution the inexperienced practitioner, against making the *difficulty of breathing* the only indication for more blood-letting; this should constitute but one of the considerations; for of itself, it is not always sufficient, especially in rapid cases, or in one, in which the first stage of the disease was altogether neglected, and the commencement of the second, but feebly treated.

1401. To make a second bleeding proper, there must be a continuation of the same symptoms, though perhaps with a lesser degree of force, which made us determine upon this operation in the first instance; that is, the pulse must be firm, the skin warm, the face flushed and the oppression considerable.

1402. If these conditions obtain, we should not hesitate a moment to draw more blood; and that to an extent that shall produce an evident alteration in the force of the pulse; but two bleedings are not to follow each other, without the interval being employed in the exhibition of other remedies; and among the first of these, are the emetics, and the expectorants, as has been already advised, together with the use of calomel. In this state of the disease, as in the one just considered, the emetic should be followed by the hive syrup, so as to maintain a slight nauseating influence, as well as occasionally to provoke the stomach to puking.

1403. The rubefacient remedies should now succeed the operation of the emetic; and such a quantity of calomel should be administered, either with the tartrate of antimony, or alone, as already suggested as to procure a free discharge from the bowels.

1404. The greater the disposition the disease has to run a rapid course, or in other words, the more sudden and violent the attack, the greater as a general rule, will be the chance of success, from the use of proper remedies, and especially, that of blood-letting; for it almost always happens, that the slower cases are attended by an indolent inflammation, or an engorgement, that will not so well bear the loss of blood; or will certainly profit less by the loss of it.

1405. When the practitioner may be reluctant to draw more blood from the general system, and yet believes the inflammation cannot be subdued without further depletion, he generally has recourse to local bleeding—hence the frequency of leeching, and cupping, in croup.

1406. This practice is recommended by almost every practi-

tioner; and by some of very high authority; it may therefore not only excite surprise, but perhaps draw upon us reprehension, when we enter our protest against it; and especially against leeching.

1407. We are free to admit, that it appears every way plausible, that drawing blood from near the inflamed part, should be attended with more success, than when it shall be taken from a part more remote; yet in the particular instance we are considering, our experience gives a uniform contradiction to the hope of benefit from the practice, though it does not impair perhaps the truth of the general position. But this failure of benefit from local bleeding, in the case under consideration, must not be considered, however, even as an exception to the general rules, just mentioned, but as depending in a great measure, or perhaps altogether, on circumstances, inseparable from the operation of leeching itself.

1408. The operation of leeching is attended with several circumstances decidedly adverse to this disease: for 1. It employs considerable time; during which the patient is obliged to maintain an irksome position, and this may be extremely unfavourable to his breathing. 2. It often becomes important, that the quantity of blood to be drawn, should be exactly determined: this cannot be done in leeching—especially, as the after-bleeding is sometimes very considerable, to the manifest injury of the patient, in spite of every attempt to arrest it. 3. Their coldness, and the sudden exposure of the throat, after having been warmly covered, is sometimes so mischievous, that the symptoms can be seen to increase during the operation; and are almost sure to follow immediately after it. We can most safely declare, we never have in a single instance witnessed leeching do good; but we have, in a number of cases, known it to do harm.

1409. If topical bleeding must be had recourse to, let it be by cups—against these the objections are not so strong. And if they be employed, between the shoulders, is the place to be selected; when drawn from here, we have seen it useful. Cups should never be applied over the throat, for reasons sufficiently obvious.

1410. Dr. Cheyne says, “when bleeding is used upon the commencement of the violent symptoms, the relief is often immediate; and I have scarcely believed that I saw the same child breathing softly, who ten minutes before lay gasping and convulsed.” p. 17.

1411. We have never had the good fortune to see this sudden good effect from bleeding in genuine croup; we have a number of times witnessed very prompt relief from this remedy, in the spurious, or that kind which is accompanied with sore throat, or perhaps bronchitis. For the vessels of the fauces and bronchia,

seem to feel the influence of venesection more certainly and speedily, than those of the mucous membrane of the trachea.

1412. Neither in the stage of the disease now under consideration, nor in either of the other two, have we ever witnessed any advantage from severe purging;* though there is evident use, in having the bowels freely opened. Indeed, in the congestive stage, we think we have constantly found it injurious; for it rapidly diminishes the strength, without weakening the disease. For it would seem, there is less intercommunion between the bowels, and the respiratory viscera, than with almost any other part of the body.

1413. Puking in this stage, (the second,) is manifestly useful; especially, when considerable nausea accompanies the operation; it must therefore be repeated as often as the breathing seems to be obstructed, by accumulating phlegm. We believe the tartrate of antimony to be the best emetic in this stage of the disease.† The sulphate of copper has been much extolled lately; with what propriety, we cannot say from our own experience.

1414. Blisters are highly recommended by some; as regards our own experience, we are by no means convinced of their utility, unless it may be in the forming stage of this complaint, and at the termination of the second; but even then, we are not in the habit of relying on them. We prefer the rubefacients; as their powers are more at command, and can be renewed whenever they have ceased to maintain a proper degree of irritation. It has appeared to us, there is a period of this disease in which blisters may be useful; but they are not exclusively to be relied on, as just stated; we have occasionally employed them at this time, and once or twice with marked advantage. It is when the second stage is merging into the third. At this time in some few instances, they seem to act with peculiar felicity.

1415. "The warm bath is a very unequivocal remedy; but as it is a simple and popular one, it is generally used along with an emetic, before the physician is called; and together or separately, by their antiphlogistic powers, they in very many instances prevent the formation of the disease."‡

1416. There is no remedy in this disease so popular, or so much abused, as the warm bath—it is one however that we feel more difficulty in prescribing, than any other of the materia

* May this not be accounted for, from the strong sympathy which exists between every portion of mucous membrane? And if the extensive surface of it which lines the intestines be much irritated by drastic cathartics, may it not exert an unfriendly influence upon that of the trachea?

† Of late we have questioned this assertion—we think the compound syrup of squills, at least equal, if not superior to it. See par. 1395.

‡ Cheyne; p. 25.

medica; for it seems to us to be more uncertain, and varied in its effects, than any other. Nor is this to be wondered at; since, the temperature is never exactly fixed, and each given temperature must be a new remedy; or at least a remedy with a different power. Again, the state of the nervous and arterial systems, must be constantly varying; therefore the effects of this remedy, must necessarily be governed in a degree by these conditions. The state of the cutaneous or capillary system, must also vary as to susceptibility; therefore temperature must have different operations upon it; these differences must of course lead to very different results; and this we have so uniformly found to be the case, that we never prescribe this remedy, but with all the uncertainty which must necessarily attend applications empirically made.

1417. But we cannot agree with Dr. Cheyne, if in calling the warm bath a "simple remedy," he mean that it is one without any decided powers; we look upon it as one of extensive influence; and may, therefore, be easily abused, if not judiciously directed; as it has unfortunately become a domestic remedy. Besides, let us call to mind the importance of the surface on which this remedy is to act; either as regards its own functions, or the parts which so powerfully sympathize with it; and we shall find there is no good ground to consider this remedy as a "simple" one; at least, not agreeably to our definition of a simple remedy.

1418. This, of all the remedies employed in croup, requires the most judgment in prescribing it; and certainly the most caution, to apply it properly. We have never seen it managed with so much address, as not to have made us tremble for the consequences; nor with so much success, as to tempt us to brave them. We can most conscientiously declare, we have never, in a single instance, witnessed a decided advantage to arise from its application; but we can most truly say, we have had the most unequivocal evidence of injury. We therefore never prescribe it in this disease.

1419. Do not let us be understood to condemn this remedy, when employed by others, because we do not ourselves understand its management; we only mean to confess our ignorance of the proper state, or time, for its application. We are afraid that this remedy has become too much a part of routine in this complaint; therefore, very likely to be abused. There is a popular feeling in its favour which we are very certain it does not deserve; and, in consequence, it becomes "a domestic remedy," and "is employed before the physician sees the patient," and that we fear to the injury of the individual who is subjected to it.

1420. Laudanum in combination with antimony, is recommended by Dr. Cheyne, when the febrile symptoms run high—we admit this to be high authority for the practice; but unless we witness more success from this combination in the hands of others, than has been experienced by ourselves, we shall not again be tempted to employ it. Laudanum, as far as our experience goes, has ever been injurious in this stage.

1421. If the disease does not yield pretty early after the formation of the second stage, to the remedies just pointed out, the vessels of the inflamed surface relieve themselves by effusion, and thus form

The Third Stage.

1422. This stage consists in the formation of a deciduous membrane, which, more or less, strictly fills the trachea, or else, in the pouring out of a quantity of purulent lymph, which does not coagulate; but almost as certainly obstructs the air-passages. This effusion is not confined, however, in all instances to the trachea; the bronchial vessels relieve themselves in the same manner; and this sometimes throughout the lungs; as far at least as the naked eye can trace them.

1423. It is of much consequence to recollect this highly important pathological truth; since it will have a strong bearing on the question of an operation, whenever this may be agitated.

1424. The third stage necessarily is one of great hopelessness; since we cannot with certainty get rid of the existing obstruction; or if we could, we cannot alter, or at least but very rarely, the disposition of the parts, to perpetuate the difficulty by new productions.

1425. The indications in this stage are, 1st, to remove the obstructing lymph from the windpipe; and 2d, to prevent the formation of more, by altering the condition of the inflamed surface of the trachea.

1426. In some few instances, emetics have fulfilled, both the one and the other indication; and the patient has been thus most unexpectedly snatched from the grave.*

1427. The membrane has been more frequently removed from the trachea, than its removal has been attended by success to the patient, after its discharge. This is a most melancholy truth,

* "I shall here notice only those remedies which have been found decidedly beneficial. Of this kind are emetics repeated daily or even twice a day. They evidently accelerate the separation of the adventitious membrane, and favour its expulsion. However valuable this treatment may be, and I have myself obtained cures which I could attribute to it alone, it is no doubt too true, that the greater number of cases still prove fatal." *Laennec*, p. 126.

and one that should not be lost sight of; especially, as on the removal of the membrane recovery is so confidently expected. Never shall we forget our feelings, when this took place in a beloved child of our own; nor ever cease to remember our disappointment, when we found it to be unavailing.

1428. Michaelis, (Cheyne, Case X. p. 65,) relates a case of death after the membrane was twice discharged by emetics; nor is this surprising, since by the removal of the obstruction, we do not remove the disposition to subsequent effusion; and as long as this continues, there can be no security against new formations.

1429. But this is not to make us abandon an enterprise in which so much *may be gained, if we succeed in removing the obstructing membrane*; especially as the same author furnishes us with an instance of success, after the membrane has been thrown up.

1430. As in the third stage, the obstruction is purely mechanical so far as we know; and as that consists of a membranous production, but feebly attached to the side of the trachea, as fresh lymph is most probably constantly pouring out, to weaken its adhesion, it would seem that, that remedy which would give the most sudden shock to the respiratory organs, would bid fairest, to remove it—hence the utility of pretty powerful emetics at this period.

1431. In this all practitioners seem to agree; but there is some variety of opinion, on the proper substance for this purpose. In Europe, saline, or antimonial emetics, are considered best; in this country the polygala seneka in very strong decoction is preferred; and we believe with propriety. At least the only instance we have witnessed of the expulsion of the membrane, was produced by a very strong decoction of this root.*

1432. We would therefore rely on it with more confidence than any other of the emetic substances.

1433. This medicine is, however, apt to run off by the bowels when exhibited thus strong; should this be the case, a quantity of laudanum sufficient to merely restrain its purgative effects, should be given from time to time. Two or three drops every two or three hours, will generally be found sufficient for this purpose.

1434. We have but very little confidence in any other reme-

* Take half an ounce of powdered seneka, pour on it half a pint of boiling water, and let it simmer until nearly half reduced; strain it carefully, and give a tea-spoonful every fifteen or twenty minutes until it puke. This quantity will answer for a child from one to three years old—for one of greater age, two tea-spoonfuls at a time may be given; but we believe the decoction should never be weaker than the above.

dies in this stage of the disease; especially any that can fulfil the second indication, unless emetics do.

1435. We have never seen calomel, blisters, or warm bath, do the least good at this period; indeed the painful remedies should now, we think, be withheld, (if we except the more powerful rubefacients,) since they hold out so little promise of success. We thought we saw evident relief in a late case, from the spirit of turpentine.* Twenty drops were given every hour; it seemed to relieve much; but the patient died.

1436. As a last resource, tracheotomy has been proposed with confidence; but it has been but too often performed without success. Nor is this to surprise us; since by the operation *nothing more* can be expected, than has resulted from the spontaneous discharge of the membrane; and we have already said that this is but rarely followed by permanent relief.

1437. In our opinion, the operation has been proposed with more intrepidity, than discretion; for until we can prevent new accumulations after the removal of the previous ones, we need promise ourselves but little success from this scheme. It has been said, that the failure from this operation has been principally owing to its being performed too late; and hence it has been advised early in the disease. But who would promise himself that he had saved life by this operation, should the patient even live, since if it be performed early, other remedies might have succeeded as well? And when performed late, who has witnessed its success? Therefore, in the early stage of the disease, the operation is certainly not called for, nor would it be proper to have recourse to it, since, the disease is very often relieved without it, and in the latter, we believe it has ever been unavailing.

1438. We have seen it performed twice without success, where the operation, simply considered, had every advantage which sound judgment, and consummate skill could give it—for Dr. Physick was the operator. And we believe we do not venture too much, when we say he has no confidence in it. Dr. Cheyne employs some most convincing arguments against this operation, to which we with pleasure refer those who may wish to investigate this subject further.†

* What might be the effects of this medicine in the congestive stage of croup, if boldly pushed, we have yet to learn; we think, however, it deserves a trial, as its influence upon the mucous membranes seems to be undisputed; we shall certainly urge it, the first fair opportunity we have the misfortune to contend with.

† We are disposed to believe, that the cases in which the operation of tracheotomy was performed with success, were instances of Cynanche laryngea; for in this disease, the patient is suffocated from an œdematous swelling of the glottis taking place very rapidly from the inflammation of the larynx, which

1439. But notwithstanding the unmanageable character of this disease, when its first stages has been neglected, or feebly treated, we have the experience of some of the most respectable European practitioners, as well as our own, to bear us out in the assertion, that when early attacked, by adequate means, there are few diseases so entirely under the controul of medicine.

SECT. IV.—CYNANCHE PAROTIDÆA, OR MUMPS.

1440. This disease consists in an inflammation of the parotid glands, and is of the phlegmonous kind. It is often confined to one side, though more generally to both; sometimes, the maxillary glands are also implicated, and hence the swelling of the jaws.

1441. For the most part, this is a disease of little moment; especially if it occur in the warmer seasons of the year. But at other times, there is much constitutional disturbance. Rigours followed by much fever, sometimes happen, especially during the variable weather of early spring, or late fall. The first sensation of inconvenience, is about the angle of the lower jaw; this part presently becomes painful upon moving the head; tumour is now perceived at this part, which goes on to increase until the fourth or fifth day; after which it gradually subsides, if not maintained by fever. It is not unusual for one side to be first affected; and after this has nearly run its course, the gland upon the opposite takes on inflammation, and also runs its course. When this happens, the disease becomes more protracted and painful.

1442. We have occasionally seen severe suffering from this complaint; this was in consequence of a high degree of inflammation and an excessive enlargement of the gland. The jaws become closed, and deglutition is performed with much difficulty. The ears are now and then much pained, as in common ear-ache. The stomach is sometimes annoyed by nausea, or is disturbed by vomiting; and in some few instances, we have witnessed excessive fever, and even delirium.

1443. When this complaint is unattended by much fever, its progress is regular, and its termination favourable—in such case, it is scarcely an object of medical discipline; at most it requires but lenient purging, a low diet, and some mild topical applications, as warm sweet oil, or hog's lard, and the pained parts kept warm by flannel. Care however should always be taken, even in the mildest forms of this disease, that the patient be not

may again pretty quickly subside, if respiration can be maintained a sufficient time, and which seems to be insured by the artificial means resorted to in this operation.

exposed to the risk of taking cold; as a remarkable peculiarity attends this complaint; which is its disposition to metastasis or translation; to the testes, in males; and to the breasts, in females, especially in adults.

1444. In the severer forms however of this complaint, active measures are sometimes indispensable; bleeding to a considerable extent, we have occasionally found necessary; brisk purging, and the strict observance of an antiphlogistic regimen.

1445. Occasionally we have been obliged to have recourse to topical depletion by leeches; and this followed by warm cataplasms of bread and milk, to promote the further discharge from the bites of these animals. The mercurial purges appear to answer best in this disease; especially if their operations are promoted by either of the neutral salts.

1446. Should a translation take place, it may be accompanied by many distressing symptoms. In the male, we once saw the testes prodigiously enlarged; much suffering was endured, and great hazard was incurred by the change. Violent fever and delirium accompanied this metastasis; and it required a perseverance in very active remedies, to subdue them.

1447. In the female, the breasts are the seats of the metastasis; they sometimes enlarge very much, and become extremely tender and painful; but we believe they never run on to suppuration.

1448. In the treatment of this complaint under a change of seat, regard should always be paid to the part originally affected. With this view we have always blistered the parts immediately over the parotids, and we think with decided advantage. If the change has taken place in the male, we also exhibit an emetic, and apply warm vinegar by means of flannel to the scrotum, and this to be repeated from time to time. A brisk purging should also be instantly instituted, after the operation of the emetic is entirely over; provided neither the blistering nor the vomiting has been successful in recalling the morbid action to the original seat of the disease.

1449. In females, besides blistering and purging, (for with them it is doubtful whether emetics are useful in this condition,) we apply warm vinegar by means of flannels to the inflamed breasts, as directed above. We have never seen any permanent evil follow these translations, though several such are recorded by authors.

1450. This dease, like several others, affects the system but once; it is supposed to be contagious; but whether this be well founded we are not prepared to say—it is almost always epidemic, at least in this country; which may with much propriety call in question its contagious nature.

SECT. V.—PERTUSSIS, OR HOOPING-COUGH.

1451. Hooping-cough usually begins like a cold, with more or less fever, and catarrhal defluxion; these continue, in some instances, throughout every stage of the complaint; while in others they cease in a few days. The onset of this disease is for the most part abrupt, without any distinct febrile movement; and is sometimes early attended with the peculiar inspiration which gives it its common name.

1452. But this mark must not be too exclusively relied upon, in the history of this complaint; for we have repeatedly seen cases of hooping-cough where the sonorous inspiration has been altogether wanting—we are certain we do not labour under any mistake on this subject, as we have witnessed the fact in the same family of children, all of whom were, at one and the same time, under the influence of this disease. Dr. Hastings declares the same fact; he says, “in some cases, where it, (hooping-cough,) has obviously arisen from contagion, and has begun in the form of catarrh, it never takes on the peculiar character of hooping-cough; for the difficulty of breathing, cough, and pyrexia, are so urgent as to prove speedily fatal.”* It would seem that the absence of hooping has been a fatal symptom in the cases observed by Dr. H. but we do not think this to be essential to this exemption; for it is certain, that death does not always follow in such instances, if our observations do not very much mislead us.

1453. At other times a considerable period elapses before this takes place, and in some cases it does not at all happen. Cullen tells us he has had instances of a disease, “which though evidently arising from the chincough contagion, never put on any other form than that of common catarrh.”

1454. The disease becoming confirmed, the paroxysm consists of a number of short expirations, closely following each other, so as to produce a sense of suffocation, to overcome which, a violent effort of coughing is made, which usually ends in vomiting, or with a discharge of phlegm, or mucus, from the lungs.

1455. In many cases, when the paroxysm is over, there is complete relief for the time being; so much so, that the individual seems not at all affected, except perhaps, temporarily a little weakened.

1456. This complaint is not accompanied by difficulty of breathing, as a necessary attendant, unless in such as may have

* Treatise on the Inflammation of the Mucous Membrane of the Lungs, p. 200.

a chronic affection of the thoracic viscera. If it attend hooping-cough in such as have no pectoral complaint ordinarily, it betrays for the most part, some latent mischief in either the bronchial membrane, or the substance of the lungs themselves—this may be inflammation or engorgement.

1457. Dr. Watt says that hooping-cough is sometimes attended with great torpor of the bowels, requiring large and frequent doses of medicine before it can be overcome; we have never witnessed this condition; and when it does occur, it is perhaps only “a relative state;” the coats of the stomach and bowels being “varnished” as it were with mucus, and this preventing the operation of medicine, by not permitting a contact between the medicine, and the intestinal membrane. Also that the urinary secretions is influenced, and micturation produced.

1458. In the commencement, expectoration is sometimes very deficient; the cough is hard and dry; the paroxysms recur frequently, and are long-continued. Congestion of the lungs now take place; which produce, by the interruption of the circulation in these organs, a correspondent state of the head; and as a consequence, a turgescency and suffusion of face, amounting occasionally even to lividness, which is sometimes relieved by gushes of blood, from the mouth, nose, eyes, or ears. In this manner, the disease runs an indefinite course, from one month to three, or even twelve months, though the average is, perhaps, the second period. This, however, very much depends on the season of the year; it being always of longer duration in winter. The popular notion is, and which indeed is not far from the fact, that it is six weeks in reaching its height, continuing for some time with but little abatement, then declines, and goes off in six weeks more.*

1459. Some writers, especially Webster, consider the hooping-cough as consisting in some cerebral disorder; and adduce as evidence, the existence of head-ache, redness in the eyes and cheeks, and the relief that a bleeding at the nose affords, together with the appearance of the brain and its appendages, after death.†

1460. Dr. Gregory, like Webster, speaks of a “*tensive* pain

* The course and termination of hooping-cough is very uncertain; for even when mild as respects its general symptoms, it may persevere without much change from two to four months; and the severer forms may last a year, as we have more than once seen. Weather has a very decided influence upon its character and continuance; being almost always of a milder grade and shorter duration in warm dry weather.

† That the nervous system is occasionally implicated in cough there can be no doubt; but that a pathological condition of any one portion, is the cause of hooping-cough, remains yet to be proved. Lobstein (*a*) in his account of the

(*a*) De Nervi Sympathetici. p. 150, § 142. Tab. viii. Fig. i.

of the forehead, and in severe colds, this is obviously an *urgent* symptom, and one which demands attention in reference to practice." We have paid considerable attention ever since we read Mr. Webster's paper on whooping-cough, to the symptoms which particularly mark this disease; but we have never satisfied ourselves of the existence of any *primary cerebral disorder*. We have occasionally had confessions from our patients that they had more or less head-ache, especially after violent coughing, but there is surely nothing in this, more than might be expected, from the severe efforts the chest demands in this disease. And of the "tensive pain in the forehead" just spoken of, we have never been able to satisfy ourselves that it existed, even late in the disease. This may have arisen from our patients, at least nineteen out of the twenty we have attempted to examine with this view, were too young to either describe it, or make them sensible of our meaning. In the few we interrogated that could comprehend what we suppose Mr. Webster intended by the expression, it was certainly wanting. Nor is the relief experienced from bleeding from the nose, any proof of the existence of the condition of the brain and its appendages Mr. W. insists on; since this kind of bleeding very certainly removes pain from the head, when the mucous membrane of the frontal sinuses is inflamed in catarrh. Besides, the appearances after death, as stated by Mr. Webster, do not appear to be confirmed by Laennec.

1461. Dr. Watt says, as observed above, that this disease is a bronchitis. And dissection agreeably to him, has proved this to be the case. In case third he says, that "on laying open the upper part of the trachea its internal surface was of a reddish flocculent appearance, but without any inflammatory exudation. This inflammatory appearance increased as we proceeded downwards, till in the more minute ramifications of the bronchia, the whole surface was of a bright red colour, as if painted." Watt on the chincough, page 145. And Dr. Lettsom says, that in a dissection made by Mr. Combe of a patient who died of whooping-cough, that the ramifications of the aspera arteria were greatly inflamed, and that the further they were followed the more considerable the inflammation appeared.

1462. While on the other hand, Dr. Watt says, page 146,

sympathetic and its ganglia, mentions the case of a child of six years old who died of a convulsive cough, and in which, the left side of the solar plexus was found inflamed, the right remaining sound. And Autenrieth of Tubingen, in a similar case, found the vagus nerve inflamed in its whole course through the thorax. The neurilema was painted with blood-vessels, and the pulp had a dull red tinge. The cardiac and sympathetic nerves in the thorax, were also in a slight degree affected. We have therefore no doubt, that a pathological condition of portions of the nervous system may produce cough, and that cough be convulsive; but still, every convulsive cough is not whooping-cough.

that "on removing the skull-cap, the dura mater adhered to it very firmly, but did not show any signs of disease. The veins over the surface of the brain were very turgid, but perhaps not more so than we usually find in young subjects. There was no water in the ventricles; and the other parts of the brain appeared to be perfectly healthy. And other dissections mentioned by him prove, that hooping-cough is virtually a diseased condition of the mucous membrane of the bronchia; and that the brain if affected, is so secondarily; and consequently, not the seat of the disease. Besides, the "tensive pain in the forehead," is a constant attendant upon "bronchitis," and must not be looked upon, as a necessary consequence of a cerebral affection.

1463. With respect to the origin of pertussis, there is considerable doubt. It is supposed to depend on a specific contagion, which affects persons only once. To this however, there may be exceptions.

1464. While it is pretty generally admitted that the disease proceeds from contagion; there are writers who maintain that it occasionally, at least prevails as an epidemic; and hence must originate in a more common source. Much discussion has lately taken place on this point: but the facts are not sufficiently numerous, nor well authenticated, to warrant any positive conclusion. Yet we confess, that we are inclined to believe that it depends on causes of a more general and pervading influence than contagion.

1465. That it does in some instances arise from other causes than contagion, seems quite certain. Willis, who was the first to describe it accurately, declares it to be an epidemic, occurring most commonly in spring and autumn. By Hoffman it is said to have spread in Berlin to a great extent in the same way. In the tenth volume of the Medical Repository of New York, Dr. Willey gives an account of the disease having suddenly broken out in Block Island; and where it prevailed widely, without the inhabitants of the place having had any intercourse with an infected source. It is a rule with few or no exceptions, that where a disease can be traced to atmospherical influence, it does not prove contagious. Nature, indeed, can hardly employ two such opposite causes to produce the same effect.*

* It is a well known fact, that many become affected, where every precaution is taken to avoid contagion; and that the disease is uniformly relieved or even cured, by a removal beyond the limits of the supposed distempered atmosphere.

Agreeably to Desruelles, the following writers have described epidemic hooping-cough. (*Traité de la Coque cluche*, p. 101.)

* Pasquier speaks of an epidemic of this kind that broke out in March, 1411. More than 100,000, in Paris alone, were attacked with it. This account is confirmed by Maquay.

De Thou relates another epidemic, that besieged Paris, 1510; this was called

1466. Believing that the complaint is generated by specific contagion, we have perhaps too much neglected to look for other causes of its production.* Yet on the whole, in the present state of our knowledge, it will be most prudent to proceed in practice, under the impression that it is of a contagious nature.

1467. It may be inferred from the history of the disease, that the diagnosis is neither difficult nor obscure, but this is not exactly so; for in its commencement, it so much resembles the common catarrh, that it is almost always mistaken for it; especially, in early spring, and late autumn: nor can it well be decided, which disease it may be, until the permanency and obstinacy of the affection, declare it to be hooping-cough.

1468. Dr. Heberden says, that "old persons are less liable to hooping-cough than children, but are by no means exempt from it; I have seen it in a woman of seventy, and in a man of eighty. A child has some notice of the approach of a fit, so as to be able to run to his nurse or mother, before it begins; but adults are as it were overpowered at once upon the access of the fit, so that they fall down instantly as in an apoplexy, but very soon come to themselves; this is a distinguishing symptom of the disease in those who are grown up."†

1469. The remote cause of hooping-cough may be received, at the moment catarrh is about to make its appearance; and this may be confounded with it; or it may be called into action by the catarrhal affection, and thus perpetuate the symptoms of this disease. Or it may, and we believe it often does at the periods just named, assume all the forms of catarrh, and from which, in the commencement, it would be impossible to decide, whether the affection under consideration be hooping-cough or catarrh; for hooping-cough, in the *spring and fall, at its onset*, is attended by as much febrile action as catarrh, and it is not until this inflammatory stage is about to pass away, that the cough assumes the paroxysmal form, and declares the disease to be hooping-cough. When the spring is pretty far advanced, and during

hooping-cough; the symptoms were not related by him; though mentioned by Sennertus.

Reverius mentions one that spread over almost the whole of Europe, in 1557. Buillon gives an account of one in 1578.

Geller describes one that took place in 1557, in the duchy of Mecklenburg. Askou, one that happened at Copenhagen, 1775.

Arrand one that occurred at Mayence, in 1769, &c. &c.

From these testimonials it would appear, that this disease has occasionally appeared in an epidemic form, from 1411 to 1815; the last, that is, the one of 1815, is said to have occurred at Milan.

* Dr. Watt gives an account of a cough, resembling in every respect the hooping-cough, produced by a quantity of saw-dust getting into the windpipe.

† Commentaries, p. 434.

the hot weather of summer, hooping-cough is rarely confounded with catarrh; for at these periods there will be less fever, and the disease will more quickly betray its peculiar character. But fortunately no evil can arise from their being confounded; for at this period their treatment must be precisely the same. It also resembles the initial symptoms of measles; for in hooping-cough there is sneezing, watery eyes, swelling of the eyelids, and an unusual fulness of the face. But the doubts to which of the diseases these symptoms belong, is for the most part soon cleared up, by the eruption taking place in measles on the third or fourth day after the commencement of the catarrhal affection. It is however said that instances of measles, have occurred without any eruption having taken place; but this we have never seen.

1470. This disease is generally most severe with infants, as they cannot expectorate with the same freedom as older children, and are thus debarred this source of relief. Dr. Watt and Mr. Moss, however, seem to be of a different opinion. Dr. W. says, "I have almost always found that a healthy child at the breast, suffers as little from the disease, as at any age." p. 71. Mr. M. declares, that "a child of two or three months old will often struggle through it, as safely as an older child."*

1471. Where it attacks with much fever and catarrh, it is unfavourable; and with pneumonia, or peripneumonia notha, still more so. Consumptive subjects rarely, if ever, recover. The favourable circumstances are, absence of fever and oppression; free expectoration, and facility of vomiting. The disease terminates sometimes by the gradual wasting of strength, or runs into chronic affections, as consumption, asthma, hydrothorax, and hydrocephalus; or suddenly by apoplexy, or suffocation from spasm of the glottis.

1472. It is obvious, that the irritation of the remote cause, wherever it may be seated primarily, induces an inflammation of the mucous membrane of different parts of the organs of respiration, occasioning an increased secretion of fluid; which, accumulating, acts as an extraneous substance, and brings on the cough for its expulsion. When this natural effort succeeds, there is for a time a complete interruption of the coughing; but upon its being reproduced, we have a repetition of the paroxysm. By too long a continuance of this irritation, disorganization takes place in the lungs; and the system at large participating in the morbid affection, a gradual exhaustion of strength, and death takes place: or the air-cells being choked up, or the glottis closed by spasm, or by collection of mucus, or lymph, the patient dies

* Management of Children, &c. p. 281.

suddenly from suffocation: or possibly in some instances as is represented, the brain may become so affected as to constitute a new and more complicated case, terminating life by coma, convulsions, &c.

1473. At this period, an inflammatory state of the system undoubtedly exists. It however exhibits a very peculiar character, owing perhaps to the nature of the cause by which it is excited; for it unquestionably is far less obedient to the usual remedies than ordinary inflammation; and in many respects proves illustrative of the modification which this condition receives from the agent producing it.

1474. Dr. Watt regards this disease as essentially an inflammation of the mucous membrane of the bronchia; and that when it terminates fatally, it is generally by the production of severe bronchitis. Dr. Hastings says, "these cases," (cases that terminate speedily in death,) "do not differ from bronchitis. Dissection shows the trachea and bronchia highly inflamed, and the latter and the air-cells filled with a whitish pus-like fluid." p. 201.

1475. Laennec says, that hooping-cough holds a middle place between the mucous, and pituitous catarrh, as far as regards the nature of the expectoration, and the bronchial congestion; but that it possesses some characters peculiar to itself.

1476. Such, as its rarely occurring twice in the same person; the cough taking place by fits; "each fit," he says, "is composed of a quick succession of sonorous coughs, with scarcely any perceptible inspiration between; except that from time to time the expirations of coughing are suddenly interrupted by a very deep, seemingly convulsive, and noisy inspiration, accompanied by a lengthened hissing, which constitutes the pathognomonic sign of this variety of catarrh. The stethoscope exploration of the chest in the intervals of the fits, supplies only the usual results of catarrh—namely, a feebler respiration than natural, or the complete absence of this in certain points which however sound well—puerile respiration in other parts, and occasionally, a slight sonorous or sibilous mucous rattle." p. 96.

1477. Desruelles makes it consist of an inflammation of the bronchia, complicated with cephalic irritation. But that the "inflammation des bronches est toujours primitive, et l'irritation du cerveau consécutive." p. 77. We can readily imagine that the brain, or its appendages may indirectly become implicated with hooping-cough; since the very efforts of the thorax during the paroxysms are well calculated to force an unusual quantity of blood into the brain—we therefore need not be surprised that dissections have revealed water in its ventricles; though we cannot admit that the inflammation which terminated by

the effusion of water, was the cause of the affection of the lungs.

1478. Desruelles considers the character of hooping-cough, as essentially inflammatory, under all its modifications, and appearances. He says, "à quelques causes que puissent être attribuées les modifications qui présente la coquecluche; quelles que soient l'activité ou la lenteur de sa marche; la violence ou la faiblesse de ses symtômes, la promptitude ou le retard de sa guérison, son état de simplicité ou de complication, son issue heureuse ou funeste, cette affection offre toujours les caractères d'une maladie inflammatoire dont les differens degres, sont les principales causes des formes diverses qu'elle revêt." p. 27.

1479. We are every way willing to admit, that hooping-cough is an inflammatory disease; but we are tenacious that this inflammation should be located primarily and consecutively, in the mucous membrane of the bronchia, because post mortem examinations prove this fact, and because, almost all the phenomena of this disease declare the same thing. For in its commencement, the lungs are primarily affected, as is evidenced by cough, and sometimes by the rapid formation and expectoration of mucus. In its progress, especially in the severer cases, by a sense of suffocation, and difficulty of breathing; and in its terminations, by a proper expectoration of phlegm, when it eventuates favourably, or by suffocation, when its issue is fatal, while the cerebral affections appear to be secondary, if they even show themselves. Some look upon the disease to be entirely spasmodic.

1480. This last opinion is principally derived from the fitful nature of the coughing paroxysms, the debility which sometimes attends the disease, and the convulsive action of the moving powers of the chest. But this opinion must be given up upon the evidence revealed by dissections, of mechanical obstructions existing in the air-cells, and bronchia of the lungs. For it is one of the functions of inflamed surfaces to throw out lymph or serum; and this is performed in hooping-cough with so much certainty, that we never see the disease, without it being attended with a profuse secretion of mucus; and this sometimes to such an extent, as to destroy the patient, by preventing the due oxygenation of the blood, by interrupting the ingress of air from without.

1481. But it may not always be necessary to danger, that an immoderate secretion of mucus should take place; for a high state of inflammation of the membrane of the air-cells and bronchia, may be every way sufficient to prevent a due oxygenation of the blood; as these membranes cannot perform a healthy function, while labouring under a powerful, and perhaps an over-

whelming, diseased action—hence the sudden relief experienced sometimes from the loss of a few ounces of blood, where severe oppression of the chest, lividity of the lips, and cheeks were found.

1482. It will therefore follow as a consequence, that the violence and obstinacy of the disease will very much depend upon the extent and degree of the inflammation of the larynx, trachea, bronchia, and air-cells; for several or all may be involved at one and the same time. For the inflammation may be so limited in extent, and so mild in degree, as to create but little general, or even local injury; or it may involve so much structure, as to occasion death, immediately, by suffocation, or remotely, by producing phthisis in those who may labour under tubercular predisposition. When we speak however of suffocation, we do not mean that it is always by mechanical obstructions in the air-cells; but from the want of the necessary decarbonation of the blood; a thickening, or turgescency of the mucous membrane, of the air-cells and bronchia, as just noticed above; giving rise to the circulation of black blood—and hence perhaps the sudden and extreme debility, that sometimes takes place in this complaint, from the effect that black blood exerts upon the nervous system.

Treatment.

1483. Notwithstanding, a more correct light has been shed on the pathology of hooping-cough, little new is proposed for its management.

• 1484. As the whole of the phenomena of this disease at its commencement declare it to be catarrhal; and as in most instances, in the colder parts of our seasons, it is attended with fever, and marks of local irritation, and inflammation, there is the most decided necessity of treating this complaint, by evacuants; as blood-letting, laxatives, and vomiting; and these must be repeated, according to the exigency of the case. These remedies should be persevered in, until they produce direct evidence, that the inflammatory stage of the disease is abated, or subdued; or, in other words, let the disease in the first instance, be considered as a violent catarrh, and be treated accordingly.

1485. We are persuaded that this disease oftentimes becomes inveterate, and sometimes dangerous, from prescriptions being based upon a mistaken pathology. Thus both Burton* and Millar† reject blood-letting altogether; though Millar sometimes ventured upon the application of leeches. Lieutaud‡ never em-

* Appendix to treatise on the non naturalis.

† Observations on the Asthma and Hooping-Cough.

‡ Med. Prat.

ployed it, but in extreme cases; that is, when the fever was very violent, and the respiration difficult, &c. We would therefore wish the reader to keep in mind the opinion of Laennec, Desruelles, Watt, and others, that in whooping-cough the bronchia, or other portions of the lungs, are sure to be in a state of inflammation, especially in its commencement; and if proper depletion be neglected, a second stage of the disease is formed, and in which we find a disposition either to metastasis to the brain, or that this organ already participates severely with the original complaint, hence, convulsions, inflammation of the brain, or hydrocephalus, are found to supervene.

1486. Bleeding is demanded in many instances, independently of other circumstances, by the interrupted circulation through the lungs; and it affords almost always, the most decided relief.* And this must be repeated as the necessity for it may continue; or as this necessity may subsequently return, in the progress of the case. Even in Europe, where the lancet is comparatively so sparingly resorted to, this practice is commended, and generally adopted; but in this country, its employment, for the most part, is indispensable.

1487. This was the practice of Willis, who was the first to give a regular account of this disease;† he chiefly relied for its cure upon vomiting, purging, and blistering. This appears too, to have been the general practice of the age, and particularly of Sydenham and Hoffman; and among many inferior names, we have those of Astruc, Huxham, Hillary, Home, Lettsome, &c. in favour of this course of treatment.

1488. Evacuations from the alimentary canal must be brought in aid of bleeding; and these may be made by emetics, or laxatives, according to circumstances; the best laxative is castor oil, after the bowels have once been well opened by calomel. Emetics are chiefly applicable to children; and where the attack is violent, and the oppression great, they are to be repeated, provided the accumulation of phlegm is great and threatening. To keep up the impression on the stomach, small doses of the syrup of squills, or ipecacuanha,‡ should be given in the intervals. Or what has answered all these intentions with the most decided efficacy, is Coxe's hive syrup, given in proper doses.§

* By bleeding we wish to be understood constantly, the taking of blood from the general system, by means of the lancet.

† This was in 1664.

‡ We would use the vinegar of squills, where there was but little fever; and the ipecacuanha, where this was considerable—or we may join the tartrate of antimony with the vinegar of squills with much advantage.

§ The hive syrup, it is true, contains both squills and seneka, but the stimulating effect of both these articles, is controlled by the emetic tartar, and on which it almost exclusively depends for its emetic properties. In cases not

1489. We always have recourse to this medicine immediately after the reduction of the pulse by bleeding, if this have been necessary, and after having purged with calomel. The hive syrup must be given in such doses as shall promote expectoration; or should there be oppression, or evidence of great accumulation of phlegm in the windpipe and lungs, in such quantity as shall freely puke. We, for the first purpose, order doses suitable to the age of the child, every hour or two, as it may show its effects. For a child of three or four months old, we would order eight drops every hour or two, and a proportional larger quantity, as the age of the child is advanced; and, for the second view, we would give this quantity or more every fifteen minutes, until an emetic operation be produced. Let it be, however, remembered, that children of the same age will bear very different quantities of this medicine, as well as of every other; therefore the dose must be constantly regulated by the effects. After this medicine has operated as an emetic, it must be given as before directed, as an expectorant.* But should bleeding not have been necessary, the case will rarely require more than demulcent drinks, and a low diet.

1490. The state of the expectoration is a matter of consequence, and should always be attended to; for from it much may be learned. In favourable cases, after the disease has arrived at its height, or is upon the decline, the expectoration becomes more profuse, and the sputa lose their mucous character by assuming a more purulent appearance. But if this take place suddenly, or in the early part of the disease, it is for the most part an unfavourable sign. Nor is blood mixed with the expectorated matter, a good token, generally speaking.

1491. The most abstemious diet should be observed during the whole of the catarrhal stage of this complaint, which is from three to six weeks, according to the season. Children at the breast should receive nothing but the mother's milk; and those

accompanied with much arterial excitement, we do not hesitate to commence with it, if the promotion of expectoration be desirable, or if the removal of phlegm by puking, be necessary.

* The following is the recipe for making the compound syrup of squills, or Coxe's hive syrup.

Take of Seneka snake-root bruised,	} each half a pound.
Squills dried and bruised,	
Water, - - - - -	eight pounds.

Boil together over a slow fire till the water is half consumed; strain off the liquor, and then add of strained honey four pints.

Boil the honey and the strained liquor to six pounds, or to the consistence of a syrup; and to every pound of the syrup, add sixteen grains of tartar emetic; that is, one grain to every ounce. It is best to have the tartar emetic dissolved previously in some hot water, that it be equally distributed through the syrup.

who are weaned should be confined strictly to a milk and vegetable diet. All animal food, or broths, must most scrupulously be avoided. Rennet whey is preferable to whole milk. The drinks should be barley water, flaxseed tea, slippery-elm bark tea, gum Arabic water, bran tea, toast water, molasses and water, &c. The milder laxatives, though recommended by many, do not answer as well as calomel for the first purging; for, independently of its purgative effects, this medicine would seem to exercise some other power. Certain it is, that active evacuations by calomel in the commencement of the disease, have, in a greater or less degree, the effect of breaking down the force of the catarrhal symptoms, and to abridge the career of the disease. We, therefore, almost always commence the treatment with a mercurial purge; and repeat this for the first two or three days if the condition of the bowels require it. But, whatever opinion we may adopt of its mode of action, we are certain of its utility; and, as there can be no dispute as to the propriety of having the bowels well opened in the beginning of the disease, calomel seems to be suited to the best purposes.

1492. During the general treatment which we have pointed out, we are not wholly to lose sight of some local remedies in this disease. Congestion and inflammation of the lungs are apt to take place; for the relief of which, blisters are found decidedly advantageous after proper evacuations; or should it be necessary to draw more blood, let it be done by leeches, or cups, from between the shoulders. We are decidedly of opinion, that blood cannot be taken by leeches or cups with any thing like the same advantage from any other part, when congestion of the lungs is threatened; and it sometimes becomes important to follow this up, by a blister, to the same part.

1493. When there is a strong determination to the head, the same remedies are required; both general, and local. Leeches to the temples we have found of singular advantage, where much pain in the head has been experienced after each spell of coughing; indeed we now never neglect this last symptom; as we are convinced it was the prelude to fatal issue in two or three cases we have seen, by extravasations within the brain—and who has not witnessed the advantage, or at least the immediate relief, from an accidental bleeding from the nose?

1494. Though we admit of determination of blood to the head in this disease, and recommend, as just stated, local depletion for its relief, we are by no means of opinion that either this determination, or an inflammation of the brain or its appendages, have the least agency in the production, or even the perpetuation of the cough, with which either may be associated. Yet the supervention of inflammation, or even a congestive state of the

brain, will very much increase the danger of the patient—therefore these conditions require the active means just recommended for their relief. Nature sometimes furnishes the means of relief herself, by instituting a bleeding from the nose—this, when sufficiently extensive, affords more relief than either cupping or leeching, and should therefore always be encouraged to as great an extent as may be compatible with the exigency of the symptoms, and the strength of the patient, if this be practicable; but this is rarely so, as the discharge from the nose is almost always small in these cases.

1495. But let it be remembered, that the bleeding from the nose, however instrumental or speedy it may be in abating the violence of the marks of determination to the head, or of congestion in the brain, only proves the immediate condition of these parts, and not an original agency, in the production of hooping-cough.

1496. In the use of the remedies recommended above, we would wish it to be understood, that we do not always prescribe bleeding, or the loss of blood in any other way, in every case of hooping-cough, as it very often presents itself without the symptoms which would justify this, or perhaps any other depleting remedy, except occasionally the use of the syrup as just directed, to secure a free expectoration, or the administration of a few grains of calomel, or what is better, after the few first days of the disease, is the occasional use of castor oil, if the bowels be confined.

1497. If due regard have been paid to the treatment of the inflammatory or catarrhal stage of hooping-cough, or if the remedies for subduing this state have been successful, a second period of this disease will arrive, in which other remedies may be useful.

1498. But it should be carefully ascertained, before the character of the remedies are changed, that every vestige of inflammatory action shall have ceased; therefore the pulse must be carefully examined, and it must be found sufficiently subdued, before we commence with the antispasmodic and tonic remedies.

1499. Desruelles finds much fault with these directions; and says, “comment se fait-il que le Doctor Dewees, qui montre tant de confiance dans le régime, qui le prescrit avec tant de réserve et de sagesse, ait cru nécessaire de donner l’émétique, d’entretenir les nausées par des petits doses d’ipécacuanha, de purger souvent avec calomelas, et de s’abandonner à l’action incertaine et souvent nuisible des narcotiques des antispasmodiques et même des toniques? il préconise la saignée et la diète, et il administre des médicamens stimulans; n’est-ce pas détruire d’une

main ce que l'on a fait de l'autre. Par quelle étrange association d'idées peut on faire concourir au même résultat des moyens se opposés, et si contradictoires?" p. 242.

1500. In answer to the above questions, it will be only necessary to say, we differ a little in the progressive pathology of whooping-cough, and on this circumstance, does the difference of our treatment arise. Desruelles considers the bronchia at least, if not the brain or its appendages to be in a state of phlogosis during the whole continuance of the cough; while we are of opinion, that the stage of inflammation passes away; and that if the cough continue, after the pulse declares the absence of febrile action, that it arises from some impression made upon the nervous system; or that it may then become the cough of habit. With this belief in view, we prescribe a rigid diet, order bleeding, either general, or topical, or both, purging, &c. but after the necessity for this discipline has ceased, we think, we have always found it useful to give either antispasmodics, or tonics.

1501. We do not order, as will be perceived, two different plans at one and the same time; for we have just insisted, that "before the character of the remedies are changed, we should carefully ascertain that every vestige of inflammatory action has ceased." There is certainly no inconsistency in this practice—nay it is very often essential to the cure of many affections, as fevers, and especially intermittents, that the system be reduced before tonics are given.

1502. We have just stated that Desruelles looks upon the whooping-cough to be essentially an inflammatory disease under all its modifications, and through the whole of its career; and that it consequently requires an antiphlogistic treatment from its commencement to its final departure. But as we have never had any reason to be of this opinion ourselves, we have not adopted the notions of this author upon this point. The difference of our views of the character of this disease during its progress, will readily account for the difference of our plans of treatment; we might therefore retort his queries with equal propriety, when he insists upon one uniform mode of practice through the whole course of the disease; for to us it appears as inconsistent, as our plan does to him.

1503. In justice however to him, we have to acknowledge, that we have seen a number of cases of whooping-cough subdued, and that speedily in some instances, by a perseverance in the antiphlogistic plan of treatment; but in justice also to ourselves we must say, that we have seen very many more, that required the change in treatment, that we have laid down.

1504. We believe it has been chiefly owing to want of attention to the state of the pulse, that this disease has not yielded

more generally to the influence of remedies—for it has been prescribed for more empirically, than almost any other complaint in the long catalogue of human diseases. When the first stage has been neglected, or improperly treated, the disease will pursue its course in spite of all opposition; and the patient may be felicitated when it takes its departure, however protracted this may be, and leaves not behind, more serious evils than were experienced by its presence.

1505. We have no confidence in the opinion, that this disease will have a determined course; and that we can only relieve the pressure or inconvenience of the immediate symptoms, though urged by Sydenham himself. Nor shall we inculcate this belief, unless it were a well ascertained fact, as it would but too certainly foster supineness and indifference in the treatment of this formidable disease.

1506. Too much has already been taken for granted upon this subject; and though we are not in possession of proper counter-agents for this complaint, it certainly does not prove it to be indomitable. The intermittent fever, and lues venerea, were once thought to be equally, if not more unmanageable, than whooping-cough; but the discovery of the bark, and the use of mercury, have rendered them comparatively harmless diseases; the proper or appropriate remedy for whooping-cough may therefore be yet discovered.

1507. If the opinion prevail, that whooping-cough will have a definite duration, all exertions to abridge its career will be paralyzed, and the poor suffering infants and children will be deprived of even the moderate aid it is now in our power to give. As regards ourselves, we are decidedly of opinion, that its duration may as certainly be shortened, as the march of fever; nor do we say this upon slight or inadequate grounds if our observations have not deceived us. We have known this disease to be made run its course in eight members of the same family, and at the same time in less than six weeks; and in many other instances the period has been abridged with equal success. But what has entirely confirmed us in the persuasion, that the period of this disease can be shortened, nay, even stopped short in some instances, was the success we once witnessed from the exhibition of the tincture of artificial musk, in a family of five children, who were all labouring under confirmed whooping-cough.

1508. When we prescribed this remedy, the disease had been of about two weeks standing; all the children were attacked within the period of a week; the catarrhal symptoms were very mild; it was summer, and they readily yielded to a moderate antiphlogistic plan. All inflammatory action was completely subdued, and all the children were put upon the use of the arti-

ficial musk at the same time. One, the youngest, (eleven months old,) ceased to cough altogether in less than a week, and neither of the others continued as much as a fortnight.

1509. We however confess, we have not seen so striking an instance of the influence of this article since; though we are every way convinced, it is a valuable remedy in this disease, and one that we have long been in the habit of using.

1510. Another disadvantage arising from the belief that this disease cannot be shortened, is, the neglect of early measures to subdue, or moderate the inflammatory action of the system in its commencement. In consequence of this, cerebral and pulmonic congestions form, of which the patient perhaps speedily dies, or such disorganization takes place as to render him miserable for life. This doctrine is not understood by people in general—for when it is declared we cannot abridge the period of the disease, it is always understood to mean, that we can do no good in whooping-cough; of course the physician is but too rarely employed in this complaint.

1511. Yet we are certain, there are few diseases, in which more relief is experienced than whooping-cough, when treated in the commencement of the disease; of this opinion also was the experienced Dr. Underwood, who declares, “there is no complaint of children, with which I am acquainted, in which medicine is at times more evidently serviceable, than in bad whooping-cough.” Then why should patients be abandoned in this formidable complaint, for an ill-sustained hypothesis?

* 1512. Narcotics, and antispasmodics, are also directed at this period of the disease, and of these, opium claims our first notice. After evacuations have been duly made, and there is a proper abatement of fever, or other marks of irritation, its use as a palliative of the more troublesome symptoms, is sanctioned by the experience of almost every body. The pleasantest, and we believe the best form for its exhibition, is the *brown mixture* in suitable doses at night.*

1513. During the prevalence of the pathology that ascribed

* The following is the formula for the brown mixture; so called from its colour:—

Rx. Elix. paregor.	℥j.	Take Paregoric elixir	1 ounce.
Vin. antimon.	℥ss.	Antimonial wine	½ ounce.
Suc. Glycyrrh.	℥ij.	Liquorice ball	3 drachms.
Pulv. G. Arab.	℥ij.	Gum Arabic	2 drachms.
Aq. fervent	℥vj.	Hot water	6 ounces.
	M. ft. sol.		Mix.

Of this a child from four months to six may take a small tea-spoonful every two or three hours during the night, should the cough be troublesome; one from six months to a year, a large tea-spoonful, and repeat, if necessary; one from one to two years, a dessert-spoonful, and repeat; one from two to four, a table-spoonful, and so on as age increases.

the disease to spasm, antispasmodics were the chief remedies. Of this class of remedies, almost the whole were tried in succession, and particularly the castor, artificial musk, and asafœtida. Of the powers of the former we are entirely ignorant, having never prescribed it. Cullen, however, tells us, that it is of no value.

1514. The second, or artificial musk, has been long in use in spasmodic affections, and its powers have been in some degree ascertained. It is only, however, within a few years, that an application has been made of it, for the cure of pertussis; and we have already said, that we have found it sometimes a valuable remedy. It is also highly estimated by Underwood; and especially where the spasms are violent; it is given in the dose of five or six drops on sugar, or highly sweetened milk.

1515. Of the antispasmodics, asafœtida has always borne a high character; but our own experience is by no means calculated to advance the reputation of its powers in the disease in question; we have found it occasionally useful, but never of decided efficacy.

1516. On the subject of asafœtida, it may be well to say a few words more, as popular opinion is much in its favour. Our own experience we have just stated; I shall therefore quote from those who have had ample experience in the employment of this drug.

1517. Dr. Millar says, "when it, (asafœtida,) was prescribed early, other medicines were seldom necessary, the patient, while using it, was cool, free from thirst, or any other febrile symptom, and easy between the fits of coughing, which were moderate, and attended with a discharge of phlegm, by which an accumulation of viscid humours in the stomach and lungs was prevented, the appetite preserved, and all the excretions duly maintained."

1518. On this, and similar accounts of the success of this drug, Dr. Watt makes the following remarks. "Such is the account which Dr. Millar gives of the effects of asafœtida in chincough; but though no doubt partial, to his favourite remedy, he does not appear by any means to have been blind to its defects. Even in the mildest cases he did not trust to it alone; and in the more severe he deemed it altogether inadmissible. Hence he goes to remark—

1519. "But though asafœtida has been given with remarkable success in the early stage of hooping-cough, yet I never venture to prescribe it in the advanced state, or when the disease was accompanied by a hectic fever, hæmorrhage, or phthisical symptoms. It is therefore not to be imagined, that no other remedy is at any time necessary; for as the management must

always depend upon particular circumstances, no invariable rule can be laid down; thus on some occasions, emetics, blisters, issues, and setons; and in others, astringent medicines may be indicated.*

1520. "On the whole," says Dr. Watt, "even by Dr. Millar's own account, asafoetida is only to be regarded as a remedy in chincough, when the disease is mild, and when perhaps little or no treatment is necessary."* We are persuaded our own observations on the use of this drug, have furnished us with a number of instances in which it proved highly injurious.

1521. We are next to consider the proper plan, after the cause of the disease, whatever it may be, has worn itself out, or is dismissed from the system, and when the cough is kept up by the force of habit only; to interrupt the trains of morbid association, tonics have been directed; and especially such, as are supposed to have the effect of subduing paroxysmal tendencies. The Peruvian bark was of course placed at the head of this class; and is much celebrated. Cullen bestows on it unqualified praise; and considers it by far the most certain means; and even says, when given in sufficient quantity, he has seldom seen it fail of speedily putting an end to the disease. It is reasonable to suppose, that the bark might be useful; though it must be confessed that we have not witnessed such striking results from it; and, on account of the difficulty of getting children to take it regularly, it is rarely prescribed in this city.

1522. This objection, however, does not apply to the sulphate of quinine; and it deserves a fairer trial than we suspect it has received. We have employed it in but one case; but this was one of the most forlorn kind—it produced almost resuscitation.

1523. Mr. Sutcliffe combined the bark with cantharides, and administered it with great success, he says, in hooping-cough. The following is his formula:—

R. Tinct. cort. Peruv.	-	℥iij.	Take Tincture of bark	-	3 ounces.
Elix. paregor.	-	℥ss.	Paregoric elixir	-	½ ounce.
Tinct. canthar.	-	℥j.	Tincture of cantharides	-	1 drachm.
M.			Mix.		

Of this mixture small doses were given three or four times a day, gradually increasing until a slight strangury was excited, and then the dose was diminished, or taken at longer intervals. The strangury would generally take place about the third day; and the hooping-cough seldom continued above six days from the first exhibition of the medicine. It however succeeded sometimes without exciting any strangury, though it generally produced its

* Watt on Chincough, p. 285, &c.

salutary effects sooner, when that circumstance came on, whether the bark was joined with the cantharides or not.

1524. Dr. Lettsom informs us, that "during twenty years, this ingenious practitioner, has almost constantly continued to use this medicine with the most flattering success."

1525. Dr. Lettsom being desirous to know whether Mr. Sutcliffe's more mature experience led him to place the same confidence in this remedy, wrote certain queries to him respecting chincough.

1526. Mr. S. replied to these several queries, and concluded by remarking, "I never yet saw an unsuccessful event after using the composition of bark, cantharides, &c. having never lost a patient in the whooping-cough." Dr. L. declares a similar success awaited his own trials of this medicine. Watt, p. 282.*

1527. But we never employed any remedy of equal efficacy with the garlic in substance, to relieve the cough of habit after whooping-cough. We have very often used it; and we have rarely seen it fail. The objections arising from its smell, are, however, very great in the minds of some; so much so, that they cannot be prevailed upon to use it. But children of six or seven years of age, or even older, can very often be prevailed upon to eat it, and become after a while very much attached to it. A child of six or seven, may begin by taking a third of a common-sized clove, morning, noon, and evening; gradually increasing the dose as the system becomes accustomed to its action. One of ten years old, may take half a clove three times a day; increasing it as it may be necessary; and so on for greater ages.

1528. Desruelles condemns us for the employment of the garlic, either externally, or internally; indeed he goes so far as to say, we give a blind confidence in this substance. This affects us not; and so long as we continue to experience benefit from it, we shall persevere in recommending it under the restrictions suggested above; namely, in the absence of all febrile excitement, and when the cough appears to be perpetuated by habit. The following case is highly deserving of attention. Miss M. W. aged twelve years, had the whooping-cough in great severity, notwithstanding she was subjected to a very active treatment in

* "Specific for the Whooping-Cough. In Rust's Mag. f. die Gesammt. Heilk. (No. 2, 1828,) it is stated that Dr. Meyer, of Menden, has in a few days been enabled to remove all the symptoms of pertussis, by the external application of morphia. He directs a small blister to be applied over the præcordia; the detached cuticle being removed, the exposed surface is to be sprinkled over with half a grain of morphia rubbed up with starch. The morphia to be repeated every evening. The only internal remedy he employed was an emetic. If necessary, the blister may be reapplied every third day. In five cases, the disease was so diminished in eight days, that no further treatment was considered necessary."—*North American Med. and Surg. Journ.* No. XV. July, 1829. p. 197.

the early, or inflammatory stage of the disease. It began in March, and the cough continued with great violence until July, at which time we were requested to prescribe for her—at our first visit, we had an opportunity of witnessing two fits of coughing; both of which spells exceeded in severity any thing we had ever seen; she was literally black in the face, and was threatened with immediate suffocation.

1529. These paroxysms were repeated frequently; especially during the day; they left her weak, and exhausted; she lost flesh daily, and was so debilitated as scarcely to be able to walk. She was ordered to eat a small clove of garlic three times a day; in forty-eight hours these paroxysms left her entirely; a slight cough remained for a few days, and this soon ceased altogether. We cannot but believe it was the garlic which afforded such speedy and happy relief; particularly, as it has frequently proved as certainly, if not as extensively, serviceable, in other cases of hooping-cough.

1530. Exactly on the same principle, the arsenical solution is employed; and we have the strong testimonies of Simmons and Ferriar in support of it. Each of these writers goes so far as to declare that it is the only medicine deserving of much confidence. Dr. Bland recommends the sulphuret of potash. He gives it in doses of ten grains, morning and evening, mixed in a little honey.—*Revue Méd. Aug. 1831.*

1531. On this point we can say nothing from our own experience; as we do not deem the few trials we have given this medicine, entitled to much weight; our impressions of its efficacy are not strong.

1532. We have said nothing of the utility of topical remedies, in the acute stage of the disease; for they can rarely be useful: but in the one now under consideration, external applications may be advantageously resorted to; such as liniments of an irritating nature, as the volatile or camphorated; the spirit of turpentine mixed with olive oil; or the juice of garlic rubbed along the vertebral column. But we think we have observed more advantage to result from the use of the tartar emetic ointment,* than from any other application—this should be applied high up between the shoulders.

* The following formula we are in the habit of using for children:—

R. Tartrate of antimon.	ʒjss.	Take Tartar emetic	1½ drachm.
Ol. lavend. vel ess. lem.	gtt. xx.	Oil of lavender, or essence of bergamot,	20 drops.
Cerate simp.	ʒj.	Simple cerate	1 ounce.
M.		Mix.	

With this the part indicated above must be rubbed, three times a day, until it shows a number of small pimples upon it—dress with common cerate. If the irritation subside too soon, it must be reexcited by the ointment.

1533. It is well understood, how much the action of the lungs is dependent on a nervous influence from the spinal marrow; and it is probably on this principle, the efficacy of such embrocations is to be explained. The muscles of the chest, diaphragm, and scapulæ, receive portions of the cervical and dorsal nerves; the accessory nerves of Willis form a part of the par vagum, and assist in giving rise to the cardiac and pulmonic plexus; hence the propriety of applications to the spine; and the popular opinion of the utility of a Burgundy pitch plaster between the shoulders, is accounted for, from anatomical arrangement.

1534. Of the efficacy of the change of residence, more particularly to the country, and even of a frequent exposure to fresh air, every one is so fully persuaded, that the remedy is abused, by its general and indiscriminate adoption. It is by no means uncommon to see children exposed, in the coldest and most inclement seasons; and this sometimes, by the order of the attending physician. Nothing can be more pernicious and ill judged.

1535. On the subject of the change of air, Dr. Watt observes, p. 217, "I agree that pure air and change of air, are exceedingly necessary to bring round the patient from a convalescent to a confirmed state of health; but this is not the only period in which change of air may be useful. I have seen the disease kept remarkably mild in many individuals, and in several large families, by having the children almost constantly in the open air from the commencement; driving them about from place to place in carts and open carriages. I have known many where the disease was very severe, on being taken out in the open air, getting better every hour as they proceeded on their journey, the patients scarcely giving a cough, and the fever going off entirely."

1536. "It must be confessed, however, that on many occasions children have been worse on being freely exposed to the open air. I saw several remarkable instances of it last winter and spring. Some people, who had formerly experienced the benefit of change of air, were anxious to give it a trial, without reflecting sufficiently on the nature of the case, and season of the year." p. 218.

1537. "I have never seen children in any state of the disease, the worse for being taken out in the summer months, unless too much exposed to the sun in the middle of the day, or to the cold damp in the mornings and evenings." p. 218.

1538. "The great question then appears to be, what are the symptoms which most mark that state of the disease, when exposure will be useless if not injurious? To which I would reply, considerable fever, a strong, full, and frequent pulse, violent cough, pain in the breast, and above all, great oppression of breathing." p. 221.

1539. Dr. Ferriar is of opinion that soil may influence the surrounding atmosphere, so as to render it more valuable to the lungs in hooping-cough; he instances the limestone soil of Derbyshire, which has been long celebrated for the cure of this disease.* Of this we can say nothing from our own experience.

1540. In the inflammatory catarrh, we guard against cold, by keeping the patient in a room duly warmed; the same should be observed in the first stage of hooping-cough. The lungs in this case are either inflamed or peculiarly susceptible of inflammation, so that the slightest exposure brings on, renews, or violently exasperates the attack. Catarrh, or active pneumony superinduced on pertussis, constitutes a formidable case, and most frequently is the way in which the disease proves obstinate, or fatal. But, the inflammatory stage having passed, and the weather mild, much advantage may be derived from gentle exercise in the open air—this may be by walking, or riding in a carriage. But completely to eradicate the disease, the child should be removed into the country, provided the season of the year will justify the change.

1541. During the summer months, we think our little patients have been much benefited by frequent excursions on the water, in the steam-boat, and we constantly recommend this mode of exercise when the weather is propitious.

SECT. VI.—PNEUMONIA, OR PERIPNEUMONIA.

1542. We shall under this head confine our considerations to an inflammation of the substance of the lungs. The older writers, indeed almost all, from Hippocrates downwards, comprehend under the term pneumonia every inflammatory affection of the chest. Hence, pneumonia has been divided into a variety of species, as the seat, kind, and degree of pain may exist—and thus we have peripneumony, pleurisy, pericarditis, paraphrenitis, &c.

1543. When the substance of the lungs was the seat of the inflammation, the disease was called peripneumonia;† when it

* Med. Hist. and Reflec. Vol. III. p. 222.

† Both Laennec and Andral look upon peripneumonia to be an inflammation of the air-cells of the lungs, the internal surface of which first secretes a mucosanguineous, and then a purulent fluid. Dr. Williams defines peripneumony to be “an inflammation of the parenchyma of the lungs.” We very much prefer the accounts of the late French pathologists of this disease, to any of the older writers on this subject, or indeed we might say of the modern; for, until Dr. Forbes and Dr. Williams’ works made their appearance, very little advantage had been taken of the discoveries in pathology by the French school, by the British physicians. In Wilson Philip’s work on “Sympathetic Fever,” the names of Laennec or Broussais, if we recollect rightly, are not even mentioned; we are altogether at a loss to account for this.

occupied the pleura, it was called pleuritis; when the heart was the besieged organ, it was called carditis; when the diaphragm was the suffering part, it was called paraphrenitis; and even inflammations of the mediastinum, and pericardium, were looked upon as entitled to separate appellations. Hence, arose names for the combinations of the different parts that might be labouring under inflammation, and looked upon as complications of disease—such was the origin of the terms pleuro-peripneumonia, or peripneumo-pleuritis, &c. and which combinations unquestionably occasionally exist.

1544. Doubtless, the inventors of these divisions thought much was gained by attempting to determine the seat of the affection; though modern experience does not seem to confirm any great practical utility in an accurate location. We say this “attempt at accurate location;” for it is nothing more; since we are not in possession of such diagnostics as shall free the subject from all uncertainty as regards the various seats of inflammation, within the cavity of the thorax. Nor is this perhaps any great practical loss, so far as we yet understand the nature of inflammation, or the modes of subduing it in the various tissues it may affect;—for, with very few exceptions, if any, they are treated upon the same general principles. And when deviations in treatment were thought necessary, they are founded upon the nature of certain epidemic causes, the force of the disease, or some constitutional peculiarity, rather than upon any difference in the inflammation arising from the particular seat, or the peculiar tissue involved. We shall, for these reasons, confine our considerations more particularly to the history, nature, and mode of cure of pneumonia, or peripneumonia; comprehending under this term, as observed above, inflammations of the parenchyma of the lungs; though the several thoracic viscera, and their appendages, will also be duly considered. We shall do this, not because we expect to gain much in a practical point of view during the active stages of the disease; but because, inflammation of the separate tissues give rise to several peculiar pathological phenomena, which are revealed during life by the stethoscope, and confirmed by the knife after death.

Causes of Pneumonia.

1545. This complaint, like almost all the phlegmasiæ, may be occasioned by the sudden, or long-continued application of cold, and especially, to the lower extremities. It is also frequently induced by breathing for a long time in an atmosphere of low temperature, and suddenly exchanging it for one of high temperature, and perhaps the reverse. This cause operates with particular

force upon delicate females; young and very aged persons, and all such as are predisposed to pulmonic affections.

1546. Exposure to cold and damp when not exercising; or immediately after exercise, and if it have produced perspiration. Wearing of damp clothes; wearing garments too thin for the season, sleeping in a damp bed, &c.

1547. Running, very fast walking, or any other exercise that will very much increase the circulation through the lungs, especially in a cold, sharp air. Epidemic influence may also contribute to the production of pneumonia, by inducing a strong predisposition; and thus rendering slight, occasional causes availing—hence, the frequency of this complaint, as an epidemy. The operation of this last cause is sometimes sufficiently whimsical—selecting its victims at one time, from among children, or very young persons; at others, those more advanced in life; and again only, from the aged and infirm.

1548. As a general rule however, the sanguine and plethoric, are most frequently selected; and those, at about the middle period of life. Dr. Cullen makes the time later; that is, from forty-five to sixty.

1549. Other causes than those enumerated have been assigned for pneumonia; but of their agency much doubt may be entertained; such as acrid vapours, dust, violent coughing, adhesions of the pleura, &c. &c.

Symptoms of Pneumonia, or Peripneumonia.

1550. This affection as well as several others that some have comprehended under this term, are announced by the same general suite of symptoms; indeed, it is no less a matter of uncertainty, than it may be of indifference in a practical light, on what part of the pulmonary system, the disease fixes upon. For wherever the inflammation attaches itself, whether it be the substance of the lungs, or to any one portion of the membrane which covers them, or any other of the thoracic viscera, we find, it announces itself, by the usual signs of phlegmasiæ.

1551. A sense of cold, sometimes a well-marked chill, followed by heat, together with pain in some one portion of the thorax, are the initiatory symptoms of pneumonia. Cough, hurried, or difficult breathing, thirst, and anxiety soon follow. The pulse is more than usually frequent, or more than usually slow, and the temperature of the skin is almost always increased. The pain and cough, may be more or less severe, as the attack may be more or less violent; and the pulse will be influenced in proportion; the difficulty of breathing will augment, as the disease

progresses. Inspiration is imperfectly performed, in consequence of the increase of pain which an attempt to fill the lungs creates, and hence the breathing becomes short and frequent. Or, if there be no pain, or it be obtuse, the oppression is increased, and the breathing becomes laborious, with a feeling of heaviness about the præcordia. But Laennec insists, that "the crepitous rattle is the pathognomonic sign of the first stage of peripneumony." He says, "it is perceptible, (by the stethoscope,) from the very invasion of the inflammation; at this time it conveys the idea of very small equal-sized bubbles, and seems hardly to possess the character of humidity. These characters are most marked as the inflamed spot is near the surface of the lungs," &c.* p. 207. Andral says it is caused by the intermixture of air and liquid secretion in the air-cells.

1552. Position influences the degree of pain; sometimes it is augmented by lying on the side affected, but is not constantly so, as the contrary sometimes obtains; but a full inspiration is almost always attended, by an increase of pain. Sometimes, the patient suffers less when he lies upon his back, or on his breast; at others he is obliged to observe an erect position.

1553. The seat of pain is not constantly the same—sometimes it may occupy either side; at others the sternum; or it may dart backwards towards the scapulæ, or be confined under one. It is more usual however, about the sixth or seventh rib, and nearly midway between the spine and sternum. Nor is it always stationary; we have seen it wander occasionally to almost every portion of the chest.

1554. The character of the pain, either in degree or in kind, is by no means constant or uniform; it is exquisitely acute and severe sometimes; especially during inspiration, and coughing; at other times, it is obtuse, obscure, or even wanting; we have seen cases, especially in children, manifest not the least suffering either during the act of coughing, or of drawing a full breath; nor was there in two cases we witnessed lately, the slightest dyspnœa, though the post mortem examinations proved the existence of great previous inflammation; for there was not only extensive adhesions, but considerable hepatization, in both instances. In one, the lungs were frequently and severely exercised to the last moment, by hooping-cough; and the other by an obstinate cough, the consequence of recent measles. Pain therefore is not a constant attendant on pneumonia; nor does its

* We have inserted this much of the stethoscopic observations of Laennec, (the whole being too long,) merely to direct the attention to this new and highly important mode of ascertaining the condition of the lungs, to the whole class of medical practitioners.

location by any means, decide the nature of the tissue, in which the inflammation may exist.

1555. This absence of pain, has not unfrequently led the practitioner into error as regards the real nature of the disease he was about to treat; for he sometimes founds his diagnostic of pneumonia, upon its presence. Indeed, with many, a pain in the side is essential to the existence of this complaint—and the left side is the chosen spot; and if pain be not there, the disease is not pneumonia. But this opinion, however extensive and popular, must be looked upon as a vulgar error; for writers of the best information declare the right side to be more frequently involved, than the left.

1556. Thus Laennec informs us, (p. 200,) that “the right lung is more frequently affected than the left, not only in cases of pneumonia, but in almost all the other morbid affections to which these organs are subject.” Morgagni declares the same thing. And Andral* says, “that out of two hundred and four cases of well-marked pneumonia, the right lung was affected in one hundred and twenty-one, the left in fifty-eight, and both in twenty-five.” To these authorities however we may oppose M. Lombard,† who found, that of nine hundred and sixty-eight patients afflicted with pneumonia, four hundred and thirteen felt the pain in the right side. For this peculiarity of location, a number of conjectures have been offered, but none satisfactory.

1557. Cough, to a greater or less extent, is an almost constant attendant in pneumonia. In the commencement however, when the attack is both sudden and severe, we have sometimes known this symptom absent, and suppressed, and sometimes would not appear, until the patient had been amply bled. It will then declare itself with both severity, and pertinacity. In the early stage of pneumonia, the cough is rarely attended by expectoration, if the inflammation be severe, and the febrile symptoms run high. And the force of the disease may in some instances be almost determined by the extent, and period at which spitting may commence. In mild cases it begins as a general rule earlier, than in the severer; and in the latter we have known this discharge to keep away even for several days, or until the force of the disease had been weakened by several blood-lettings and other evacuations; while in the former, it has become abundant in twenty-four or thirty-six hours.

1558. More or less relief is almost sure to be experienced, when cough is accompanied by spitting; but much depends upon the nature of this discharge. It is usually thin in the beginning;

* Cl. Med. Tom. II. p. 317. † Archives Générales, Janvier, 1831.

but acquires consistency as the disease proceeds.* When the sputa are pretty thick, copious, easily discharged from the lungs, mild, white or slightly yellow, they may be looked upon as favourable. On the other hand, a tenacious, gluey expectoration is unfavourable; and is decidedly bad, when the matter discharged is thin, acrid, excoriating, of a brown or greenish colour; and especially if sanious and fetid. Mucus tinged with blood, is by some considered a favourable sign—we are inclined ourselves to this belief; it certainly cannot of itself be looked upon as unfavourable, while the other portions of the sputa are favourable in their appearance; and especially, if they be delivered into the mouth without much rattling noise in the lungs. The sputa must be considered as representing the condition of the secreting portions of the bronchia, and the general state of the pulmonary circulation; therefore the prognosis will very much depend upon the appearance of the expectoration, and the nature and degree of the cough.

Prognosis.

1559. The degree of relief that expectoration affords, will aid us in our prognosis; this is even a more certain sign than the appearance of sputa individually considered; for if they afford freedom and ease to the chest, it is a favourable sign, be the sputa of what colour they may. While on the other hand, if the lungs find no comfort from the expectoration, its colour or consistence signifies but little. If the expectoration should become very sparing, or has been absent from the beginning; or if it be altogether arrested after it has been established, it is sure to proclaim a continuance, or an increase of mischief, if not a state of imminent danger. But on the other hand, if it return, and be of favourable appearance, it marks a diminution of disease, if it do not declare a freedom from danger.

1560. But the state of the disease, or the degree of its danger, are not portended by the sputa alone; other marks must be taken

* Laennec says, “the expectoration in a great many instances has an appearance quite characteristic, and which, in my opinion, may in itself enable us to recognise the disease; as I have never met with it in any other. These sputa, which I shall term glutinous or pneumonic, when received into a flat and open vessel, unite in so viscid and tenacious a mass, that we may turn it upside down, even when full, without the sputa being detached, although they may hang from the vessel’s mouth. If we shake the vessel its contents vibrate like jelly, but less so. The colour of this expectoration is frequently some shade of red, particularly that of rust; or it is sea-green, tawny, orange, saffron, yellowish, or a dull green.” “If sputa of this kind existed constantly in peripneumony, we should require no other sign to indicate its presence.” p. 215.

into consideration; and first, the state of the circulating system. We have already remarked, that fever was present as an initial symptom; that is, it became evident as soon as the local condition of the lungs was established, and even perhaps before the affection of these organs betrayed itself, by other symptoms.*

1561. Much therefore must depend upon the degree and character of the accompanying fever. If this be high, and of difficult reduction by proper means, it increases the risk from the disease; because it always declares the extent and force of the local affection. On the other hand, when fever becomes obedient to the influence of remedies, it declares that the original affection is abating, and giving promise of future improvement.

1562. The pulse therefore must be no inconsiderable guide during the whole progress of the disease. For the most part, the pulse is frequent, tense and strong, in the beginning of pneumonia. But, if the disease has been sudden and violent in its attack, the pulse may not possess these characters; it may be corded, creeping, slow, contracted, and very resisting: this is the oppressed pulse of authors; and it always changes its character by a bleeding of sufficient extent, into a softer, fuller, and more distinct pulse. (See note to par. 352.) The young practitioner is warned not to mistake this pulse for a "really depressed, or exhausted pulse." The latter has none of the characters of the oppressed pulse, if we except size. It is frequent, small, and unresisting.

1563. On this head, Laennec furnishes us with several valuable practical remarks; remarks which should be well remembered by every practitioner. "In every case" (of pneumonia, whether simple or complicated,) "whatsoever, the more feeble the pulse is, the less indication is there for venesection. At the same time, it is well known to every practitioner that this feebleness is sometimes only apparent, and that bleeding will render the pulse both stronger and fuller. To discriminate the false from the real feebleness of pulse, requires the tact of an experienced practitioner; and unfortunately the most expert are in this often deceived. In cases of this kind, the use of the stethoscope will tend greatly to remove our doubts." "I shall observe, that whenever the pulsations of the heart are (proportionally) much stronger than those of the arteries, we may bleed without fear, and with the certainty of finding the pulse rise; but if the heart

* "The fever in peripneumony is truly symptomatic; that is to say, is the effect of the inflammation. It rises and falls with the inflammatory orgasm. It very frequently happens that as soon as this latter is checked by the lancet or otherwise, the fever ceases entirely, although the perfect resolution of the pulmonary engorgement will not be accomplished in less than a fortnight, three weeks, or even a month."—*Laennec*, p. 218.

and pulse are both weak, the detraction of blood will almost always occasion complete prostration of strength." p. 243.

1564. We have never witnessed the peculiarity in the pulse of the two arms in pneumonia, as mentioned by Cleghorn and others; namely, that it is more obscure on the side affected, or that it differs. We have sought for it in a number of instances, but have never been satisfied of its existence, though the cases in which we tried to detect it, were strongly marked. We are disposed to believe, that some accidental circumstance may have produced the differences spoken of, without their being imposed by the disease itself. There is almost always a difference in the force and size of the artery in the two wrists of every body, depending almost altogether upon the different degrees of use to which the arms are subjected—thus, the right, in all right-handed people, is fuller and stronger than the left, and vice versa; and this may account for the observation of Zimmerman and others.

1565. The skin is almost always hot and dry, but it is not uniformly so—the contrary of this was lately observed in a very strongly-marked case, and which terminated fatally on the seventh day. The whole surface of the body was moist from the very commencement of the disease to its final termination, though a severe diarrhœa attended for the last thirty-six hours before death. The face is hectically flushed, and sometimes covered with a dripping sweat, especially the upper lip and forehead.

1566. The urine for the most part is sparing and high-coloured in the beginning; altering, if the disease proceed favourably, to a more copious, and to a less intense tone; or if the disease augment in danger, it may be discharged in large quantities, and this quite limpid.

1567. The absolute state of the bowels, is rather difficult to determine, as cathartic medicines are constantly had recourse to in the very commencement of the disease—it may however be observed, that they are either very difficult, or unnaturally easy to move. In the first case, we are under the necessity of almost constantly urging them by laxatives, while in the other a diarrhœa may supervene on the first dose of medicine. For the most part, the discharges have nothing peculiar in them, unless they are influenced by an epidemic cause, or some peculiarity of constitution.

1568. The thirst for the most part is urgent, and especially for very cold drinks and light acids. The tongue is moist and furred with a white, pretty dense coat in the beginning, but changes to yellowish-brown, and becomes sometimes dry, especially if the expectoration is very limited, and not of a good character. In this case, a tenacious ropy saliva is secreted, which is

not easily detached, and extends itself into threads or filaments, when the mouth is opened, or when the tongue is protruded. The brain is not generally affected by delirium, though there is a more than usual disposition to sleep, if the disease assume a menacing character. This sometimes is so considerable, and the cough is so long suspended, that the rattling in the throat is very audible, in consequence of the augmented accumulation of phlegm, which at length becomes so excessive, as to rouse the patient by a severe coughing fit to discharge it.

1569. When pneumonia terminates favourably, it is by resolution;* this disposition is announced, by the pulse becoming less frequent, or irritated, softer, and more expanded and compressible. By the skin sending a free, warm perspiration on every part of the body; by the flush disappearing from the cheek; by the urine becoming more abundant and depositing a lateritious sediment.† By the cough abating both in severity and frequency; and by its being followed by a copious, purulent-looking mucus. By the tongue beginning to clean; by the abatement of thirst, and the drowsy disposition being exchanged, for one of greater watchfulness. By the breathing being free and unattended by pain; and when a moderate spontaneous diarrhœa takes place.

1570. On the other hand, the prognosis will be unfavourable, when the pulse becomes both weaker and more frequent, and not resisting the slightest pressure of the finger. When the skin pours out sweat, which is not quickly followed by relief; when the hands and feet are dripping with moisture, and are at the same time deathly cold. When the flush on the cheek assumes a livid, or mahogany colour; and the lips become blue. When the urine is pale and very abundant; very sparing and intense in colour; or is entirely suppressed. When the cough is nearly, or entirely suspended, as well as the expectoration; or when the former becomes almost incessant, and is accompanied with a gluey or sanious sputa, or by blood itself in considerable quantity. When the tongue becomes rough, dry, and dark-coloured, and the breath fetid. When delirium‡ or coma supervenes, and a

* "When resolution takes place, the crepitous rattle becomes daily less perceptible, while the natural sound of respiration becomes gradually more distinct, and at last is heard alone."—*Laennec*, p. 211.

† "Peripneumonia frequently terminates favourably by a distinct crisis, not only in the cases where the mildness of the attack or ignorance of its character, have occasioned the disease to be left to the unassisted efforts of nature, but even when repeated venesections had been employed without any benefit. The most common of the critical evacuations is a lateritious or white sediment in the urine; and we should distrust any other unless this also occurs at the same time."—*Laennec*, p. 219.

‡ "When the determination of the blood to the head is very great, and marked by coma in the beginning of the disease, as often is the case in old people of a plethoric habit, the symptom is extremely unfavourable, as the pa-

constant gurgling noise is made by both inspiration and expiration, within the trachea and bronchia.

1571. Pneumonia may terminate in other ways than resolution; namely, by hepatization,* suppuration,† or gangrene.‡

Anatomical Characters of Pneumonia.

1572. The appearances after death of the lungs and its appendages, vary in phenomena, as the disease may have been of longer or shorter duration. Laennec, whose researches into the nature of the affections of the chest, have been no less extensive than successful, makes three degrees or stages, which he assures us are very distinctly marked, and easily recognised by the appearances of the lungs; and as we have every reliance on his fidelity and accuracy, we shall follow his account closely, though very briefly; as it would not comport with the plan of the present work, to be more diffuse.

tients in whom it occurs usually die before hepatization is completely established; or the inflammation reaches the stage of purulent infiltration in the space of a few hours. A furious delirium is a much less dangerous symptom."—*Laennec*, p. 217.

"The general opinion of writers is, that delirium is an extremely dangerous symptom. It is stated by Cullen, Frank, &c. Lommius says, (*Obs. Med. Lib. secund*, p. 186,) 'Potissimum lethalis est cum insaniam movit.' I remember the late Dr. Gregory to have stated in his lectures, that he had only known one patient recover who had delirium."—*Note by Dr. Forbes*, p. 217.

* "In this degree the lung has entirely lost its crepitous feel under the finger, and has acquired a consistency and weight altogether resembling those of liver." *Ib.* p. 197. "This change," (hepatization, of Laennec, and the ramolissement rouge of Andral,) "consists in the effusion of a semi-solid albumen in the interstitial tissues, and which pressing on, and obliterating the cavities of the air-cells and smaller bronchi, destroys the spongy structure of the lung, and converts it into a solid mass. A hepatized lung presents the following character after death—externally it is of a deep red colour, which internally is mottled with a number of small, light yellowish granular spots, with patches of whiter colour, marking the vessels, membranous septa, &c. not affected by the inflammation. It sinks in water, and is no longer crepitant, but breaks readily under the fingers, and may by a slight pressure, be reduced to a reddish pulp."—*Williams*, p. 82.

† "Notwithstanding the opinion of the ancients, and the common notions of the mere practical physicians of the present day, respecting pulmonary abscesses, which are generally termed vomica, it is certain, there is no organic lesion more uncommon, than a real collection of pus in the substance of the lungs." *Ib.* p. 200.

‡ "This is a rare disease. It can scarcely be ranged among the terminations of the pulmonary inflammation, and still less can it be considered as a consequence of its intensity; since we find, in cases of this kind, the inflammatory character very slightly marked, as well in regard of the symptoms, as of the engorgement of the pulmonary substance." *Ib.* p. 221.

First Degree, (Obstruction.)

1573. This stage is marked by the external livid or violet hue of the lung and its increase of density. It is however crepitous, in a degree; and if the lung be pressed between the fingers, a fluid is perceived. It retains the pressure of the finger like an œdematous limb. When cut into, it is of a livid blood colour; injected by a frothy serous fluid, more or less bloody, which flows from it abundantly. The spongy texture is however to be still observed, unless in some more impacted points.*

Second Degree, (Hepaticization.)

1574. No crepitus to be observed; the lung has acquired the weight and consistence of liver. The lungs are frequently less livid externally than in the first degree; internally the redness is more or less deep; and differs from a violet-gray to blood-red. When the lung is cut, hardly any fluid escapes; but a small quantity of bloody serum may be forced out by scraping the cut surface with a scalpel, which is thicker than that of the first degree. When the cut surface is exposed between the eye and the light, no cellular appearance presents itself; a granular aspect shows itself instead. This account is confirmed by Dr. Williams in his work, note, p. 18.

Third Degree, (Purulent Infiltration.)

1575. In this degree the lung has some hardness, and the above granular appearance shows itself, but is of a yellowish-pale or straw colour. The pus at first as it begins to form, appears in small detached yellow points. These gradually combine, and the whole lung finally assumes a uniform straw or lemon colour, and when incised, yields a viscid purulent matter, which sometimes, especially in children, or young persons, is of a fine whitish-yellow colour. The lungs may show evidences of the three degrees of inflammation at one and at the same time. The lower parts of the lungs are those most commonly occupied by peripneumony; and when the disease involves the whole viscus, it is almost always in the inferior part that it commences. When the three degrees

* "Our knowledge of minute anatomy does not permit us to specify with certainty the exact and essential seat of this inflammation; but I am disposed, from a consideration of the signs, and the effects upon the tissue, to refer it principally to the plexus of vessels and sub-mucous tissue surrounding and uniting the minute extremities of the bronchi."—*Williams*, p. 80.

exist in different parts of the same lung, the sight of the more advanced stage is usually in the same inferior portion.*

1576. The whole of both lungs is never found inflamed in the third or even in the second degree; and this for obvious reasons; since an obstruction of this kind could not take place instantaneously, and must render respiration impossible. But it is by no means uncommon to meet with cases in which one whole lung and more than half the other is quite impervious to air. It is in the resolution, or in the retrogression of these several conditions of the lungs, that the stethoscope becomes so highly useful. By it the various grades of the degrees of increase, or diminution, can be detected, it would seem, with positive certainty; but perhaps more especially in the first, agreeably to Dr. Williams, p. 85. He says,

1577. "It is in the first stage of inflammatory injection that auscultation proves pre-eminently useful, in assuring us of the existence of a disease that *no other symptom could discover*. The presence of the ronchus crepitans may be taken as a warning to resort to energetic antiphlogistic measures, which in this stage will seldom fail in arresting its course. The disappearance of this sign, and sometimes the presence of the bronchial respiration and rhonchus, announce the increasing danger and progress of the disease, as they indicate its advance to the second stage. The diseased structure however is still susceptible of a return to the healthy state, and the view we have taken of the morbid anatomy of this stage,† suggests, in addition to means directed

* "This changes the colour of the diseased lung from the red hepatization to discoloured yellow or brownish, which is frequently mottled with red portions in the second stage, and with the black pulmonary matter. This is called by Andral *ramollissement gris*. The tissue is quite impermeable to air, and of extreme friability, being reducible by slight pressure into a kind of purilage."—*Williams*, p. 84.

† Dr. Williams' observations upon the physical changes of the diseased parts, while undergoing resolution, are no less interesting than instructive. He says, p. 86, "the resolution or retrogression of peripneumonic inflammation, is attended by a succession of the same physical signs that marked its progress, but in an inverted order. Thus in a spot where no sound of the ingress or egress of air has been heard, or perhaps only a bronchial respiration, a slight crepitant ronchus begins to be distinguished at the end of each inspiration, apparently occasioned by the air again gaining a straightened admission through a few of the bronchial tubes, whose calibres have been partially restored by the reabsorption of matter round their parietes. This sign increases in intensity as the resolution proceeds; the bronchophony and bronchial respiration are diminished as the lung reacquires its spongy structure, and becomes a worse conductor of sound. After a while the natural respiratory murmur is heard mixed with the crepitant ronchus; and as the texture becomes more permeable to the air, this increases, as that diminishes, and the healthy function of the lung is thus gradually restored. And here again the signs obtained by auscultation are invaluable, as they alone indicate the absence of the disease. The

against the inflammatory orgasm, the important advantage with which rubefacients may be used."

Treatment of Pneumonia.

1578. The essential character of pneumonia, as declared by its symptoms, and revealed by post mortem examinations, is a high and rapidly disorganizing inflammation of the substance of the lungs. Upon this subject, the opinions of all practical writers appear to be concurrent, if we admit the occasional exceptions, produced by epidemic influence. And perhaps there is no one disease that attacks the human body, in the treatment of which there is so much coincidence. This we look upon as a most fortunate agreement, both for the patient and the physician; for, to the former, it secures the advice and experience of a vast number of men of great professional character; while it relieves the latter from all that perplexing embarrassment consequent upon conflicting opinions. We shall on this account proceed with the details of practice with the more confidence; as what we shall say upon the subject of others' opinions in the treatment of pneumonia, so entirely, in most instances, comports with our own experience.

1579. The principal remedies employed for the cure of pneumonia are, 1. Blood-letting, both general and local. 2. General evacuants. 3. Blistering. 4. Alteratives. 5. Tonics. 6. Large doses of emetic tartar.

1. Of Blood-letting, &c.

1580. This remedy in pneumonia, must be looked upon as one of indispensable necessity; and though this be admitted by every body, yet the quantity to be drawn, and the frequency of its repetition, is by no means so unanimously settled. We are averse to directions upon this point, when the quantity is to be expressed by the number of ounces; as this must always be of uncertain application, as no two cases, perhaps, will require the same quantity, precisely. Constitution, force of the disease, age, period of the disease, habit with respect to bleeding, and epidemic agency, have an influence upon the necessity and extent of this operation.

dyspnœa may have been removed, the cough may have ceased, the expectoration may have become simply catarrhal, the pulse natural, and all febrile symptoms disappeared; and yet the auscultator detects the lurking disease in the persistence of the crepitant rouschus; and as long as this continues, a slight exposure to cold, or a trivial departure from antiphlogistic regimen, may cause a relapse, which in a subject already reduced by depletion, may be more difficult to cure than the original disease."

1581. On this account, we very much prefer, that the quantity to be drawn should be regulated by the state of the pulse in particular, and on the immediate condition of the disease. For if we do not regulate the operation by these rules, much uncertainty must exist; if absolute risk be not incurred. Besides, if we make the pulse, and the condition of the part, as they may be affected by this operation the rule, we shall avoid much embarrassment in the abstraction of blood, either as regards the quantity to be drawn, the necessity of its repetition, and the propriety of drawing it at any period of the disease.

1582. As regards the pulse, too much attention cannot well be paid to its varying state, both as respects the consequences of disease, and the influence of remedies, in all affections of high excitement, and of rapid course. For in employing the only remedy capable of controlling their force, or of abridging their career, namely, blood-letting, we do nothing, unless we abstract a sufficient quantity to give immediate relief to the affected part—and this cannot be determined by prescribing the loss of any given number of ounces of blood, as the quantity that may afford relief in one instance, may be altogether insufficient in another, or in a third, it may be even excessive and injurious. On this account, we are in the habit of taking as much blood as will relieve the pain, oppression, or sensation of congestion in the chest. This is to be determined by requesting the patient to make as full an inspiration as he can from time to time during the flow of blood, and comparing his sensation at such periods, with those he had previously experienced; and if upon trial he can fill his lungs without pain or any considerable inconvenience, we stop the flow of blood, though the pulse may still be vigorous; while on the other hand, if little or no advantage has been gained, we continue to abstract until this end be obtained; or until the pulse flutter under the finger, or syncope supervene.

1583. It must therefore be evident, that no quantity expressed by weight or measure can be satisfactory; since, it cannot be determined, *a priori*, what the quantity shall be. If we are regulated by the first mentioned condition, namely, relief, though the pulse be still active, we are very certain that similar benefit will be effected by a repetition of the bleeding, should a new necessity be created; since, it shows so vigorous a condition of the heart, as to give assurance, that the system can still bear with advantage a further loss of blood. When bleeding is repeated, we are regulated by the same rule, and so on, until the disease is subdued; or until we are assured, that we cannot profitably abstract more blood by the lancet. But even in this case, we do not abandon the depletion from the circulating system, for we now have recourse, either to cupping or leeching, for by either

of these means, we can unload the blood-vessels oftentimes with as much certainty as success.

1584. Either of the means just named may be had recourse to; and the quantity drawn must be regulated by the existing exigency. In all pneumonic inflammations, whether of the bronchia, the pleura, or the substance of the lungs, we have for some years past persuaded ourselves that the part selected for the operation should be high between the shoulders, unless the seat of the affection is distinctly indicated by local pain; in this case, cupping immediately over the part seems to be more advantageous than between the shoulders; but this does not appear to be the case when leeching is resorted to, as this does not afford equal relief when applied over the pained part.

1585. In the second case, or where we persevere in abstracting blood because relief is not afforded, and where we are obliged to stop because the pulse is much reduced, or syncope has supervened, we are almost constantly under the necessity of repeating the operation sooner than in the first case, because a reaction of considerable force is sure to follow pretty quickly, if the bleeding has been performed in the early part of the disease, and in a generally hale constitution. In this case, indeed, we may venture to say in every case where this occurs, the drawing of blood should be immediately resorted to; and we must not lose valuable time, by waiting a certain given number of hours, as is sometimes directed. For the only proper time for drawing blood, is when there is a mischievous degree of excitement; and if this occur when two, or not until twelve hours have elapsed, it is absolutely necessary to draw blood at the instant of its recurrence; and in this instance, the one period is just as proper as the other. We therefore never gain any thing by permitting hours to govern us; the existing state of the system is the only valuable, or even safe rule. The pulse must here, as before, be our guide, together with the state of the affection of the chest, as regards pain, cough, breathing, &c.

1586. In referring so frequently to the state of the pulse, we wish to be understood to refer, to its tension, or what is usually called its hardness, rather than its activity or volume. For a hard pulse may continue even longer than we can profit by drawing blood; for, however certainly it may declare inflammation, we nevertheless do little towards the reduction of the inflammation, if we cannot reduce its hardness by blood-letting; yet it is the only means, either generally, or locally employed, by which we can obtain the end in view. Yet so indomitable is this condition of the pulse at times, that though bleeding is the only resource we have left, it is very far from being always successful. Therefore we must constantly look upon a persevering hard pulse

without an abatement of the threatening symptoms, always to be a bad sign; so true is this, that we have, in more instances than one, known it to preserve this condition while life was at its lowest ebb.

1587. We have already stated, that directing the quantity of blood to be drawn, by fixing the number of ounces, was not only vague, but unsafe; but an equal risk is not run when the loss shall be regulated by the impression it makes upon the pulse, and the force of the disease. For, if these be the guides, allowance is constantly and certainly made for all the contingencies that may present themselves in consequence of age, sex, constitution, force, and period of the disease, &c. A certain amount of blood must be lost under either of these circumstances, in every case of pneumony that remains susceptible of cure; but this amount can never be determined with any kind of certainty by any combination of round numbers; therefore, such directions should be discarded from the history of the medical treatment of any disease. The other method can hardly deceive us, if we resolve, as we should do in every case of great exigency, to watch the effect of the operation upon the pulse, and the force of the disease; whenever, therefore, any nicety is required in the quantity of blood to be drawn, the physician should perform the operation himself, or witness it when performed by another. We are certain that we have derived the most unequivocal, and prompt advantage from this plan—sometimes, causing much more to be drawn than we at first had supposed would be necessary; and at other, arresting the operation, before the prescribed quantity had been taken. Now, had either of these cases been submitted to a fixed quantity, mischief must necessarily have followed.

1588. To the inexperienced practitioner *certainly*, and occasionally perhaps to the experienced physician, the method just spoken of holds out decided advantages in those oftentimes equivocal states of the pulse, called the depressed, or the oppressed pulse, (see note to par. 352,) and the pulse of real debility. So much difficulty is generally experienced in distinguishing these opposite states, and this with men of large experience, that it becomes a matter of equal chance, whether bleeding or stimulation would be the proper remedy. But the mischief which might arise from a mistake of the indication is prevented with certainty, if the physician remain with his patient while the bleeding is performed, as the pulse will either rise or fall, in an instant. (See par. 1563.)

1589. As a general rule in pneumonia, more is to be feared, that an inadequate quantity of blood will be drawn, than that the proper quantity will be exceeded. This apprehension arises from

almost all practitioners being sorely afraid of "debility"—this fear paralyzes like an incubus; nor can they shake off this dread, until they have passed through a severe ordeal of experimental uncertainty, and find at last, that *debility in itself, is not disease*.

1590. Pneumonia very often runs its course with so much rapidity, that it cannot be arrested, but by the most decisive measures, and these especially employed in its commencement. Of this all practitioners seem to be aware; yet, they do not all agree in the extent, to which this only remedy, should be carried; this timidity is both unnecessary, and ill-timed; unnecessary, because there is nothing to be apprehended from an extensive blood-letting, if it have been properly proportioned to the force of the disease; and this can always be ascertained, if its abstraction be regulated by its effects, and not by an arbitrary number of ounces. The dread that a large and proper bleeding is excessive, and will reduce the patient to an irrecoverable state of debility, induces measures which do not even mitigate the severity of the symptoms, much less arrest the march of disorganizing inflammation.

1591. It is ill-timed; because, while half-way measures are performing, the disease is hastening on, with such wide and rapid strides, that it cannot be overtaken, should the practitioner change his mind, and determine upon the pursuit. We would here say with Dr. Gregory, as quoted by Dr. Robertson, (Edin. Journ. Vol. X. p. 192,) "the danger of a large bleeding is less than the danger of the disease;" intimating, that its force cannot be diminished, nor its fatal progress arrested, but by decisive measures.

1592. Laennec observes, "that many physicians of that country, (England,) in the commencement of pneumonia, direct the detraction of twenty-four, thirty, or thirty-six ounces of blood. The practice is not to be found fault with, since it is certain that a copious bleeding in the beginning of the disease, reduces the inflammatory orgasm much more speedily, than repeated small venesections will do at a later period, and moreover leaves less chance of a renewal of the inflammation." p. 239. These remarks of this very accurate observer, distinctly show, that it was his opinion, that a strong impression must be made upon this disease at its very commencement, and that this object could only be fulfilled by the abstraction of a considerable quantity of blood at one time. In this it will be perceived, he only coincides with the best writers on this subject of both ancient and modern times, and in which we most heartily agree; with the exception, however, that we have already made, that the quantity about to be

drawn, must be determined by the effects, and not by the number of ounces; for this never can be made a certain, nay, perhaps not even a safe guide. For the same constitutional effects will be produced by the loss of very different quantities of blood; thus, we have seen fifteen or twenty ounces achieve, in one constitution, what would require in another forty or even fifty. Therefore we must protest against the *ounce* rule of drawing blood, though such high authority as Laennec, declares "it is not to be found fault with;" for if this direction were literally obeyed, we should sometimes stop this side of the proper effect, and at others it would go beyond its usefulness; either of which would create its dangers.

1593. Laennec further observes, that "the ancients considered bleeding as a questionable remedy after the first days of the disease, fearing thereby to check the expectoration; and the best practitioners of the two last centuries forbade this operation after the fifth day, if the discharge was mucous and abundant." Here is another popular rule; a rule founded on the number of days that the disease has run; which is as vague, to say the best of it, as the one we have just been considering; for if it be a fact that bleeding will arrest expectoration at any one period of the disease, no matter which, it can only do so, from some peculiar condition of the system at large, or of the thoracic viscera in particular. Now this condition, agreeably to the rule thus laid down, takes place as a law of the system, but after the expiration of the fifth day; yet the condition required to render blood-letting injurious, if it ever take place, must necessarily be contingent upon the force of the disease, the age, constitution, and peculiarities of the patient, epidemic influence, location, and modes of treatment; consequently, cannot be dependent upon the number of days, that the disease has existed. Therefore, if it be true, that bleeding will stop the spitting in pneumonia, in any case, the peculiar condition of the system in which this takes place, should have been carefully pointed out, that the error may not be committed—but this we believe has never been done; nor have we ever witnessed the effect alleged to be produced by bleeding, at any period in pneumonia.

1594. If this stoppage of expectoration take place soon after bleeding, there is more reason to believe it to be coincidence, than cause, and effect. For it is every way certain, that mucous expectoration only takes place from either severe irritation, or a moderate degree of inflammation, and if the former be excessive, the latter will be produced; and if this be beyond a certain degree, the vessels become unable to relieve themselves by the formation of mucus, and its excretion will be stopped. But is it

not absurd to suppose that blood-letting will increase the inflammation of the bronchial membrane? Yet this must happen if expectoration be interrupted.

1595. It is true, that Laennec seems to admit that this apprehension may be well founded under certain circumstances; for he says, "apprehensions of this kind are not perhaps unreasonable, if the loss of blood be carried to syncope." In this assertion, he evidently has chosen an extreme case to found his assent upon; and it savours strongly of an hypothesis, to which however he is very little given in common, rather than the result of personal experience. For he adds immediately after, "but we know from experience that in a lesser degree, though still pretty copious, blood-letting may be had recourse to with much advantage, in a very advanced period of pneumonia, even when this has reached the suppurative stage, and is attended with great expectoration."

1596. We may therefore reduce the treatment of pneumonia, as far as regards the abstraction of blood, to the few simple rules laid down by Diemerbroeck. He says, "a vein of the arm should be opened immediately, and the blood be permitted to flow freely; should this bleeding fail to mitigate the disease, it should be repeated, even a third time, if necessary; and although this may diminish the patient's strength, yet nothing is to be feared from this; for it is far better the weakened sick should be cured, than that the strong die."

1597. Laennec however declares, "there are some cases in which blood-letting is clearly contraindicated, or at least in which it can only be used very sparingly, and once or twice at most. Of this kind is the peripneumony which attacks old people of a cachectic habit, and that which supervenes to diseases which exhibit obvious signs of a septic state of the fluids, such as violent continued fevers, called putrid or adynamic, and scurvy." Of this kind, was said to be, the peripneumony that extended along many of our great waters in this state a few years ago. In this epidemic, a practitioner residing at Miller's town, Cumberland county, informed me that he had seen much of the disease, and that in every instance in which he employed blood-letting, the patient died. Of the peculiarities of this epidemic we can say very little from our own experience, having seen but two cases in the neighbourhood in which we then resided; but both these patients were from the east side of the Alleghany Mountains, and from a district in which the disease in question was very rife. In both instances we employed the lancet liberally; one we bled seven times, and the other three—both recovered rapidly. These cases were similar, as far as could be determined from a history of the symptoms, to the majority of cases that oc-

curred along the Juniata river, and in which venesection was said to be uniformly injurious.

1598. We do not however wish to be considered as denying the modifying powers of epidemic, or other accidental influences—on the contrary, we sincerely believe in them; we would only wish to be considered as cautioning against a too great facility of credence, upon this head; because we know the point has been yielded in many instances, with too much ease, and much to the injury of the sick. Laennec furnishes us with instances of the controlling effects of epidemic, and other causes, which are every way in point, and to which he himself was witness. He says, “In certain epidemics, which have happened among persons previously subjected to the influence of depressing causes, bleeding has been found uniformly injurious. I was myself witness to an instance of this kind among the conscripts of the French army in the year 1814. In the pneumonia then prevalent I very seldom found bleeding indicated, and the small number who were bled, bore the operation so ill that I did not venture to repeat it.” p. 242. Regard should therefore always be paid to the character of the modifying causes, if our prescriptions are to be successful in their proper proportion.

2. *General Evacuants.*

1599. We may divide these into emetics, cathartics, and expectorants. Of the first of these little need be said, as they are resorted to in general to fulfil but a single, and perhaps only a temporary indication; and even that is very much confined to the cases of children. This case is where the bronchia and trachea appear to be oppressed by accumulated phlegm, and respiration much oppressed in consequence—here an emetic of ipecacuanha or the compound syrup of squills, have been found of occasional use.

1600. Cathartics are much less objectionable than emetics; because they are decidedly less injurious in their operation; they however are very far from being constantly useful, or even always safe. For the most part it may be said, that they weaken by their effects upon the bowels, very much beyond their usefulness as evacuants, in subduing the disease. This will not surprise us, when we consider how little controul cathartics can exert over the pulmonic circulation; as the blood-vessels of the abdominal cavity have very little connexion with those of the lungs, and consequently have but little agency in diminishing the quantity of blood within them. But it must not be forgotten, that it is every way important to keep the bowels freely open, though we would wish to avoid active purging; we would there-

fore have recourse to laxative medicines when necessary during the whole course of the disease. For this purpose castor oil, magnesia, rhubarb, small doses of the neutral salts, or Seidlitz powders, should be made use of.

1601. Should gastric, or intestinal irritation, accompany pneumonia, as sometimes happens, purging must not be thought of; the mildest laxatives, and these only when clearly indicated by a too confined condition of the bowels, should be resorted to.

1602. As regards expectorants, they can never be usefully employed until the inflammatory action is so far reduced, that the vessels of themselves throw out a mucous fluid; and when this period arrives, they seem to be unnecessary, as this effect will take place for the most part without their aid. We have ever found the lancet, and very mild diluents, to be the best expectorants; though we have certainly found advantage, in the decline of the disease, from small, but repeated doses of the hive syrup, or the compound syrup of squills. We are of opinion, that this compound is the best of the expectorants, as the stimulating qualities of the squill, and the seneka, are controlled by the tartrate of antimony, which enters into its composition.* Inhaling the vapour from hot water, and a free use of thin flaxseed, or bran tea, barley water, the infusion of the bark of the slippery-elm, (*Ulmus fulva*), or a thin solution of gum Arabic, are among the most efficacious expectorants. Expectorants, professedly so considered, should never be administered before the air-cells are so far relieved of their inflammatory action, that the exhalants can really assume, or at least in part, their healthy actions; one of which certainly is, to pour out mucus; and of which they are to be relieved by hawking, or coughing; for the whole class of expectorants possess considerable stimulating powers; especially the gums or balsams, the squills, &c. The tartrate of antimony and ipecacuanha are the only exceptions perhaps to the rule; and they probably owe their expectorant virtues to a semi-emetic action, or some influence upon the mucous tissue of the stomach; and thus indirectly produce the end in view; for it is much to be doubted, if we have a class of medicines that specifically act upon the bronchial surface, and induce it to an increase of secretion, though some of them, (as the *alliacæ*), are immediately applied to the whole of it. The carbonate of ammonia in pretty large doses has been highly extolled as an expectorant; and we once witnessed very decided benefit from its employment; this was a case, where the system was much prostrated, the spitting much diminished, and the sputa very tenacious. In this instance certainly, and we presume it to

* For its composition see Chap. on Croup.

be the case in all, where ammonia has restored the expectoration, it acted but as a general stimulant, thereby imparted vigour to the superficial vessels of the lungs, and thus enabled them to carry on the process of secretion.

3. *Blisters.*

1603. We have already spoken of these remedies, when treating of fever; (p. 83,) what we have said there will sufficiently direct their use in pneumonia as regards the state of the pulse or system; that is, they are never to be applied, so long as the disease will require general bleeding. The part to which they are to be applied, is a matter of some consequence—if local pain in the chest exist, the blister should be applied over the pained part; if there be none, as sometimes is the case, and only a general soreness of the chest, between the shoulders appears to be the place, that gives the most certain relief.

4. *Alteratives.*

1604. We cannot imagine, that the medicines which are commonly given as alteratives, can possibly have any beneficial effect in pneumonia, unless it run on to a chronic state.

5. *Tonics.*

1605. Of this class of remedies in pneumonia, we know nothing from our own experience, unless it be their occasional employment at the decline of the disease. Of the epidemics, which would seem from highly respectable authority to require this plan of treatment, we know nothing—under such circumstances, we, however, think it proper to state what others say upon this subject; as such epidemics may infest this country, as it appears they have done Europe.

1606. For this purpose we shall quote from Laennec, as he is generally opposed to the use of this class of remedies in acute diseases. He says, “these, (tonics,) and especially bark, are often very useful in the peripneumonies of old people, and debilitated and cachectic subjects, especially towards the termination of the disease, when, after the suppurative stage, the fever passes off, and resolution goes on very slowly.” “We sometimes even meet with epidemic peripneumonies in which blood-letting is constantly hurtful, and bark beneficial in every stage of the disease. This fact, which cannot be denied, was frequently witnessed in Germany, towards the close of the last century; and there is no doubt that Brown’s theory was indebt-

ed to this medical constitution for a portion of the same it obtained in that country. A number of such examples are recorded in the old *Journal de Medecine*; and I have myself met with many, particularly among the troops in 1814, (see par. 1598,) already mentioned. In gangrene of the lungs, cinchona is the best remedy. I have used it successfully, even in cases where hepatization around the eschar was very extensive; and have sometimes combined wine and opium with it, when the violence of the inflammatory symptoms had begun to subside. To be effectual, it must be given to the extent of an ounce of the powder, or an equivalent portion of the extract, daily. In several cases I have continued to give the sulphate of quinine for more than a month, to the extent of eighteen grains in the twenty-four hours." p. 246.

1607. Of opium, which Laennec enumerates among the tonics, he speaks disparagingly. He says, "by itself it has never, as far as I know, been recommended as a remedy in pneumonia. We even know that it is capable, in large doses, of producing the disease—instances of which I have myself seen subsequent to cases of poisoning. It has, however, been sometimes employed with success in the same circumstances as the bark. With these exceptions it should be only used, and then cautiously, to quiet nervous irritation, to procure sleep, or to check an excessive diarrhœa." p. 247. In this statement there is a little prejudice against this article, if we can judge from our own experience; for this has taught us to believe, that opium is occasionally highly useful in pneumonia, after a sufficient abatement of the inflammatory action, and especially where there is great watchfulness, and an harassing cough. Hamilton and Armstrong are decided advocates for its employment after liberal blood-letting. The former exhibited it with calomel—from one, to five grains of the latter; with from a quarter, to a grain, of the former, every six, eight, or twelve hours, according to the severity of the disease, "after bleeding and opening of the bowels." The latter, orders at least three grains, *after bleeding to syncope or approaching syncope*. He uses much larger doses of calomel than is recommended by Dr. Hamilton. Dr. Forbes also adds his testimony in favour of this plan.

6. *Tartar Emetic in Large Doses in Pneumonia.*

1608. From the frequency, severity, and danger of inflammations of the respiratory organs, much interest is necessarily excited; and consequently a strong desire must be felt to discover some remedy that shall abate the one, and diminish the other. We therefore feel it a duty to lay before our readers every thing

which may tend to satisfy this interest; especially when the testimony is so much in favour of the remedy now under consideration, and especially, when its claims are so strongly supported, by so accurate an observer, so cautious a practitioner, and so candid and faithful a relator, as Laennec, from whose Chapter on Peripneumony we make the following long, but highly interesting extract. We do this the more willingly, because, he is not the *inventor* of the method of cure about to be considered; and whatever enthusiasm he may appear to indulge in, it is certain, it does not proceed from the pride of a *discoverer*, but the honest zeal of a faithful and watchful investigator of disease.

1609. He says, "the preparations of antimony have been employed in large doses, either empirically, or on theoretical grounds, as a means of cure in different inflammatory diseases. During the seventeenth century, more especially, to judge from the remaining memorials of the controversies of those days, some brilliant cures and many unfortunate events were the consequence of this practice. These latter results may perhaps be attributed partly to the preparations being too active, and partly to ignorance of the proper method of using them. Be this as it may, we meet with traces of this practice, from time to time, in the writings of the physicians of the last century. I do not here allude to the exhibition of the medicine in small doses as an emetic, nor to the method of Rivière, who vomited his pneumonic patients with it daily, or every second day; but may remark, in passing, that this practice has always had partizans among practitioners. It was constantly followed to my own knowledge, by Dr. Dumangin, physician to *La Charité*, in peripneumony. This gentleman scarcely ever combined blood-letting with it, and yet his practice was quite as successful as that of Corvisart, who bled much in this disease. But administered in this way, the remedy is an evacuant, and its good effects may consequently be attributed to the derivation operated by it, on the intestinal canal."

1610. "The employment of Kermes' mineral as an expectorant, may be considered as a relic of its ancient use as an alterant. In the old *Formulaire des Hôpitaux de Paris*, printed in 1764, we find the remains of a still bolder practice, in a potion entitled *in pluritide et in peripneumonia*, and which consists of four drachms of the white oxide of antimony in four ounces of the infusion of borage. The famous *bolus ad quartanam*, of La Charité, is another proof of the employment of antimony in large doses, and as an alterant. I have been informed that the practice of giving antimony to this extent was longer pursued in Italy than in the other countries of Europe. At all events, it is to a modern Italian physician, Rasori, that we are indebted for the revival and demonstration of the utility of this method, which

had fallen too much into disuse. I say nothing here of this author's theory, or rather of the modification of the theory of Brown. The doctrine of *stimulus* and *contra-stimulus* has hitherto found partizans only in Italy, and will perhaps never reach beyond the Alps; but practical facts of such importance as those in question, ought to find all medical men, whatever be their theoretical opinions, disposed to put them to the test of experiment. I am unacquainted with the details of Rasori's practice, further than as these are stated in his *History of the Petechial Epidemic of Genoa*. The first idea I had of his method was derived from some medical men who had been in Italy. I began to make trial of it in 1817, having learned at this time that my colleague, M. Kapeler, had tried it with some benefit, and without any inconvenience, in cases of apoplexy. For a long time I restricted with him, my trials to this disease; but having occasion to attend two cases of peripneumony, in which venesection was not practicable, I resolved to make use of the tartar emetic in large doses: and the recovery of both patients, equally rapid as unexpected, encouraged me to repeat its employment in many other cases."

1611. "I shall here detail the manner in which I administer this remedy, and which differs, I believe, in some respects from that of Rasori. As soon as I recognise the existence of the pneumonia, if the patient is in a state to bear venesection, I direct from eight to sixteen ounces of blood to be taken from the arm. I very rarely repeat the bleeding, except in patients affected with disease of the heart, or threatened with apoplexy, or some other internal congestion. More than once I have effected very rapid cures of intense peripneumonies without bleeding at all; but, in common, I do not think it right to deprive myself of a means so powerful as venesection, except in cachectic or debilitated subjects. In this respect, M. Rasori does the same. I regard blood-letting as a means of allaying for a time the violence of the inflammatory action, and giving time for the emetic tartar to act. Immediately after bleeding I give one grain of the tartar emetic, dissolved in two ounces and a half of cold weak infusion of orange leaf, sweetened with half an ounce of syrup of marsh mallows or orange flowers; and this I repeat every second hour for six times; after which I leave the patient quiet for seven or eight hours, if the symptoms are not urgent, or if he experiences any inclination to sleep. But if the pneumonia has already made progress, or if the oppression is great, or the head affected, or if both lungs, or one whole lung is attacked, I continue the medicine uninterruptedly, in the same dose and after the same intervals, until there is an amendment, not only in the symptoms, but indicated also in the stethoscopic signs. Sometimes

even, particularly when most of the above-mentioned unfavourable symptoms are combined, I increase the dose of the tartar emetic to a grain and a half, two grains, or even two grains and a half, without increasing the quantity of the vehicle. Many patients bear the medicine without being either vomited or purged. Others, and indeed the greater number, vomit twice or thrice and have five or six stools the first day; on the following days they have only slight evacuations, and often indeed have none at all. When once *tolerance* of the medicine, (to use the expression of Rasori,) is established, it even very frequently happens that the patients are so much constipated as to require clysters to open the body. When the evacuations are continued to the second day, or when there is reason to fear on the first that the medicine will be borne with difficulty, I add to the six doses to be taken in twenty-four hours, one or two ounces of the syrup of poppies. This combination is in opposition to the theoretical notions of Rasori and Tommasini, but has been proved to me by experience to be very useful. In general the effect of tartar emetic is never more rapid or more efficient than when it gives rise to no evacuation; sometimes, however, its salutary operation is accompanied by a general perspiration. Although copious purging and frequent vomiting are by no means desirable, on account of the debility and hurtful irritation of the intestinal canal which they may occasion, I have obtained remarkable cures in cases in which such evacuations had been very copious. I have met with very few cases of pneumonia where the patient could not bear the emetic tartar; and the few I have met with occurred in my earliest trials; insomuch that this result now appears to me to be attributable rather to the inexperience and want of confidence of the physician, than to the practice. I now frequently find that a patient who bears only moderately six grains with the syrup of poppies, will bear nine perfectly well the following day. At the end of twenty-four or forty-eight hours at most, frequently after two or three hours, we perceive a marked improvement in all the symptoms. And sometimes even, we find patients, who seemed doomed to certain death, out of all danger after the lapse of a few hours only, without having ever experienced any crisis, any evacuation, or indeed any other obvious change; but the rapid and progressive amelioration of all the symptoms. In such cases the stethoscope at once accounts for the sudden improvement, by exhibiting to us all the signs of the resolution of the inflammation. These striking results may be obtained at any stage of the disease, even after a great portion of the lung has undergone the purulent infiltration. As soon as we have obtained some amelioration, although but slight, we may be assured that the continuation of the remedy will effect com-

plete resolution of the disease, without any fresh relapse; and it is in regard to this point more particularly, that the greatest practical difference between the emetic tartar and blood-letting consists. By the latter measure, we almost always obtained a diminution of the fever, of the oppression and the bloody expectoration, so as to lead both the patient and the attendants to believe that recovery is about to take place: after a few hours, however, the unfavourable symptoms return with fresh vigour; and the same scene is renewed often, five or six times, after as many successive venesections. On the other hand, I can state that I have never witnessed these renewed attacks under the use of the tartar emetic. In these cases we observe only in the progress towards convalescence, occasional stoppages. And this is more particularly the case in respect of the stethoscopic signs; as we find that, between the period when the patient experiences a return of his appetite and strength, and fancies himself quite cured, and the period at which the stethoscope ceases to give any indication of pulmonary engorgement—more time frequently elapses than between the invasion of the disease and the beginning of the convalescence. It is necessary to observe, however, that this remark is still more frequently applicable to the disease when treated by blood-letting; and moreover, that the patients subjected to the antimonial method never experience the long and excessive debility which too often accompanies the convalescence of those who had been treated by repeated venesections.”

1612. “The best way of appreciating any particular mode of treatment is by its results. I am sorry to say I began only last year to keep an exact account of mine by the tartar emetic; but I can affirm that I have no recollection of death from acute pneumonia in any case where this medicine had been taken long enough for its effects to be experienced. I have only witnessed a few fatal terminations where the case was a slight peripneumony complicated with severe pleurisy. I have also lost some patients, who, besides the pneumonia, were affected with cancer, phthisis, disease of the heart, &c. and these are the cases where I had an opportunity of observing the different degrees of resolution in this disease. Finally, I have lost some who were brought to the hospital moribund, and who sunk before they had taken more than two or three grains of the remedy. In the year 1824, at the Clinic of the Faculty of Medicine, I treated by the tartar emetic twenty-eight cases of pneumonia, either simple, or complicated with slight pleuritic effusions. Most of these cases were very severe, yet they were all cured, with the single exception of a cachectic old man, who took but little of the medicine, because he bore it badly. During the present year, (1825,) I have treat-

ed thirty-four cases in the same manner. Of these, five died; but of this number two women, one aged fifty-nine and the other sixty-nine, were brought to the hospital moribund, and sunk before they had taken more than two or three doses of the tartar emetic; a third died of disease of the heart, when convalescent from pneumonia; and a fourth fell a victim to chronic pleurisy, also in the period of resolution of sub-acute peripneumony. These two last cases will be detailed hereafter; the one at the end of the present chapter, the other in the section of pleuro-pneumonia. The fifth case was that of a man, seventy-two years of age, who died of cerebral congestion, on the tenth day of the disease. Of these five cases then, the two first cannot be adduced in either way as instances of the effect of this remedy; and the two next are proofs of its efficacy in *pneumonia*, rather than the contrary. The result, therefore, of the whole is, that of fifty-seven cases of pneumonia treated by the tartar emetic, only two individuals, both upwards of seventy, died of this disease joined with cerebral congestion—that is, a little less than one in twenty-eight. In private practice, during the last three or four years, I have not been called, in consultation, to cases of acute pneumonia, or to cases uncomplicated with violent pleurisy, except such as appeared already threatening a fatal termination; and yet I do not remember a single case which proved fatal under the use of tartar emetic; except that of a plethoric subject, aged seventy-two, whom I attended along with Dr. Juglar. This patient laboured under a relapse of pneumonia after a delusive convalescence, the third attack of the kind he had had during the preceding fifteen months. The fever was intense, with *sub-delirium* and other signs of cerebral congestion. He took the emetic tartar to the amount of six grains daily for two days; *tolerance* was established on the second day; the pneumonic symptoms decreased; the expectoration became again mucous; but he sunk on the third day from an increase of cerebral congestion. To this case I can oppose two others where the probabilities of success were less, and where, nevertheless, a rapid recovery took place.”

1613. “A man aged forty-five, weakened by various excesses, was seized with pneumonia, in 1823. I saw him on the fourth day in a state almost hopeless. The right lung was affected throughout, notwithstanding venesection had been repeatedly used. There was extreme oppression of the chest; and during the last twelve hours, jaundice, with pain in the region of the liver, had come on, indicating the supervention of hepatitis. I recommended the tartar emetic, which the attendant, Dr. Michel, the more readily agreed to, from having seen it used by Rasori at Milan. We prescribed twenty grains, to be taken during the twenty-four hours, in two grain doses; but by mistake forty

grains were given, within the same period. This treatment occasioned but little evacuation, and on the following day, we found the jaundice, the pain, and the oppression gone, the stethoscopic sign perceptibly improved, the fever less, and the patient, in short, out of danger. Convalescence proceeded without any relapse."

1614. "In June, 1825, I was called to M. de C. aged sixty-five, by MM. Laudré, Beauvais, and Jadiloux. I found the patient in the eleventh day of pneumonia. He had been repeatedly bled with marked relief, but this was always speedily followed by a renewal of the violence of the disease. Since the preceding day he had been insensible, and he now lay with the tracheal rattle of the dying and covered with a sweat, which felt cold on the extremities. Two days before, the debility not justifying the loss of more blood, tartar emetic had been tried; but the first doses having increased a diarrhœa which the patient laboured under, and the evacuations having occasioned syncope, the medicine was suspended after two or three grains, at most, had been given. On examination both lungs were found to be affected; the right over great extent, and in an advanced state of hepatization; the left at the roots and base, in the state of engorgement and incipient hepatization. I recommended the aromatic antimonial infusion, in doses of a grain and a half of the tartar emetic, with the syrup of poppy. The patient bore the medicine well, and took eighteen grains during the first twenty-four hours. It did not occasion more purging than had previously existed. During the administration the patient recovered his consciousness; the rattle, sweat, and oppression disappeared; and when we saw him on the following day, we found him decidedly convalescent, the stethoscopic signs indicating resolution. The medicine was continued for some days, and convalescence proceeded without any fresh relapse. It was questioned whether the sweat which existed at the time when the tartar emetic was administered, might not have been critical in this case. I cannot believe that a perspiration of the kind described, coming on with cerebral congestion, and the tracheal rattle of the moribund, ought to be considered as critical, more particularly as it as well as the other mortal symptoms passed off during the use of the antimony."

1615. "The above results of my practice are more favourable than those of Rasori's, lately published, (*Revue Med. Mai, 1825.*) This may be owing to two causes—first, *because auscultation enables us to ascertain the existence of peripneumony* much quicker than we could do from the ordinary symptoms; and, secondly, because, in all probability, many cases of simple pleurisy, or of pleuro-peripneumony with predominance

of pleurisy, are comprehended by Rasori under the name of *peripneumony*—it being impossible to discriminate these different affections from each other, *without the aid of auscultation*. I have already stated we must not expect equally favourable results in the treatment of pleurisy, as in the treatment of pneumonia, by the tartar emetic.”

1616. “My cousin, Dr. A. Laennec, physician of the Hôtel Dieu, of Nantes, has treated with the tartar emetic, during the last two years, forty cases of the pleuro-pneumonia. Of these, six proved fatal, three in consequence of errors of regimen during convalescence. Subtracting these, then, the proportion of deaths will be one to thirty.* Dr. Hellis, of Rouen, has lately presented to the Royal Academy of Medicine, a Memoir on the Treatment of Pneumonia, after the Method of Rivière and Stoll, that is, by repeated emetics.† Of forty-seven cases treated by him, he only lost five, being a proportion somewhat less than one in nine. This result, although much less favourable than that which has followed the use of the tartar emetic in large doses in my practice, is yet more so than that obtained from the employment of blood-letting and derivatives, which I have stated to be one in six or eight. Independently of being less successful, the practice of Rivière has not even the merit of being more gentle than the tartar emetic in large doses, as the repeated evacuations occasioned by it produces great distress to the patients, and alarm to the attendants, while such effects take place in the other method, at most only in the two first days. I continue the use of the medicine as long as the *tolerance* lasts, and while there exists any remains of the crepitous rattle. This tolerance I find every day to continue indefinitely, in patients in full convalescence—a fact which is not in accordance with Rasori’s theory. If I have been correctly informed, he considers the tolerance as owing to the excess of stimulus existing in the system, and which produces the disease; and, according to him, as soon as the excess of stimulus is destroyed by the contrastimulant effect of the tartar emetic, the tolerance ought to cease. It is certainly true, that after the acute period of the disease, the tolerance diminishes, and sometimes entirely ceases; but it is more common to find the patient become habituated to the medicine, insomuch, that, during convalescence, and when he has

* Journ. de la Sect. de Med. de la Soc. Acad. du Depart. de la Loire Infer. 1825.

† “This memoir has since been published by the author under the title “*Clinique Medicale de l’Hôtel Dieu de Rouen*, Première Anne.” Paris, 1826. From this work, and also from another before me, entitled “*Memoire sur les Fluxions de Poitrine*,” par Louis Valetin, M. D. Nancy, 1815, it would seem that the practice of giving emetics in pneumonia, so much employed formerly by Stoll, and others, has still many partizans in France.”—*Note by Dr. Forbes.*

begun to use as much food as in health, he will take daily, without knowing it, six, nine, twelve, and even eighteen grains of the emetic tartar. Putting aside entirely the question of theory, I agree with Rasori in opinion, that the tartar emetic is in general better supported, and produces more speedy and powerful effects, in proportion as the patient's constitution, and the symptoms of the disease, bear the marks of great plethora, and high vital action; but I must, at the same time, remark, that similar results, are occasionally obtained in debilitated and cachectic subjects, who have not been able to bear blood-letting, notwithstanding the presence of an intense local inflammation. Upon comparing the facts which I have witnessed in my own practice, I am convinced that the *tolerance* depends on the concurrence of several circumstances. In the first place, the medicine in considerable doses is less emetic than in small doses; an observation which has been already made by most practitioners. In the second, the habit, which accustoms the stomach to all kinds of substances, seems readily formed in respect of this, since we find that vomiting or purging almost always follows its administration on the first day, and scarcely ever returns after the second. A third circumstance, which contributes much to the prevention of vomiting, is the ingestion of the medicine in an agreeable vehicle, somewhat aromatic, and moderately diluted. The intervention of a period of two hours between the doses, also contributes to the same result. I have excited copious vomiting by means of the tartar emetic given in doses of two grains in three ounces of warm water, every quarter of an hour, in the commencement of a bilious peripneumony; while the same patient has taken it on the following, and subsequent days, in doses of from six to nine grains, in the manner formerly mentioned, without experiencing evacuations of any kind. When the flavour of the orange leaf is disagreeable to the patient, I give the medicine in some other aromatic infusion, or sweetened emulsion. When it occasions too copious evacuations, I conjoin with it, as I have stated above, a small quantity of opium—the only corrective of its operation in this way that I have observed. Cinchona certainly, does not act in this way, although it has been supposed to neutralize the tartar emetic in the *bolus ad quartanam* of *La Charité*.^{*} There is no doubt that bark, as well as the various vegetable infusions usually combined with tartar emetic, more or less decompose this medicine; but this change of state does not seem in any way to affect its virtues, since we

* "The *bolus ad quartanam* used by M. Laennec in Necker Hospital, the same I presume as that of La Charité, consists of one grain of the emetic tartar, to the drachm of bark, made into a mass by extract of juniper." (*Ratier, Formul. des Hopitaux*, p. 193.)—*Note by Dr. Forbes.*

find that one or two grains dissolved in a pint of vegetable broth, lemonade, decoction of tamarinds, or even a strong decoction of bark, will produce very effective vomitings; and this result we also observe occasionally from the *bolus* above mentioned, especially when given in small doses."

1617. "The practice above detailed is not in reality so bold as it seems at first sight; since only one, two, or three grains of the tartar emetic are given at one dose—a quantity which practitioners have long been accustomed to administer. The medicine is, moreover, given much diluted, and is thereby deprived of all the caustic properties which it possesses. These, be it remembered, are but feeble, since we know it only then produces pustules when it is applied in substance,* and retained in contact with the skin for two or three days. In prescribing the medicine, we are careful not to repeat the dose if the preceding has occasioned any ill consequences, a circumstance which will always obviate any risk from its employment in the hands of the prudent and attentive practitioner. I have been in the daily habit of employing the tartar emetic in the hospital since 1816, and more particularly since 1821; and I do not think any one who has observed my practice, have ever witnessed any ill effect, of consequence, from its administration. And I can give a like report of this in my private practice, with this single exception, that I have observed, in the latter, vomiting to be more frequent than in the hospital. This difference of result has appeared to me owing to the patients being informed by their nurses or their friends, that they were taking tartar emetic, a thing which I have always been anxious to conceal from them." Pages 249 to 258.

1618. We have thus given M. Laennec's experience in the use of the tartrate of antimony in pneumonia—in the first edition of this work we said of this plan, "we can say nothing from our own experience." But, since that period, we have very frequently used the tartrate of antimony in all the uncomplicated acute affections of the chest; in patients of all ages, and with the most decided, as well as the happiest effects; but not in the large doses of either Laennec, or Dr. Tweedie. We do not think large doses essential, as we constantly found, that small, nay, in some instances, minute doses, answered every purpose. We have given an eighth of a grain every hour or two to an adult, with the most marked advantage; and to young children, from 1-16th to 1-32d part of a grain, with equal profit. Dr. Scudamore says, "I have lately had many opportunities of prescribing tartar emetic on the principle of treatment I have described, (Laennec, &c. method,) and I have been perfectly satisfied with its useful agency; but I

* "A strong solution will have the same effect."—Dr. Forbes.

have usually commenced with one grain, and never exceed two grains, for the first twenty-four hours; nor found it necessary to go beyond eight in the progressive quantity; except in one case of insanity, in which sixteen grains were given daily for a short time, with the greatest advantage. In the quantity of two grains, it has usually produced sickness for the first day or two, but afterwards, even the increased doses have seldom caused any nausea."—*Observations on M. Laennec's Method, &c. p. 84.*

1619. Beside this evidence on this very important subject, we have collected other, which strongly confirms the utility of this remedy. Thus, Dr. Tweedie* bears evidence of the utility of this remedy in the following words:—"The remedy, however, in which I placed most confidence in inflammation of the lungs, but more particularly in bronchitis, either as an auxiliary to bleeding, or when this operation was not justifiable from the length of time the local symptoms had existed, was the tartar emetic in doses of one or two grains every second, third, or fourth hour, according to circumstances. In general it produced severe vomiting at first, the violence of which was very often lessened by the addition of a few drops of laudanum to each draught; but when the tolerance was established, it was most satisfactory to observe the gradual decline of the more urgent symptoms in the chest, and the conviction in the mind of the patient, though much suffering had been endured from the vomiting when the medicine was first administered, that their amendment was to be ascribed to the remedy."

1620. And in addition to this we will give an account of the use of the tartar emetic in the affection we are treating, as well as when it complicates pleurisy, from the fifth volume of "the Dublin Hospital Reports, and Communications in Medicine and Surgery," as it is every way confirmative of the high value of this remedy, as declared by Laennec and others, in such affections.

1621. "There are two remedies which appear to have a powerful effect in removing pneumonic inflammation; these are tartar emetic and the combination of mercury with opium. It appears a desideratum to determine in what cases each of these remedies best applies. Our experience leads us to conclude, that in the uncomplicated pneumonia, occurring in robust habits, and accompanied by inflammatory fever, the first of these remedies is to be preferred."

1622. "In some cases we find that the first dose of the remedy, (tartar emetic,) makes the patient vomit freely; but after a few more doses the medicine is borne well. But in the greatest

* Clinical Illustrations, &c. p. 43.

number of cases a state of nausea, without vomiting, is kept up, and continues several days, and indeed as long as the remedy is administered."

1623. "Sometimes we have found both vomiting and purging to follow at first, but to subside after twenty-four hours. Diaphoresis is a rare effect; and we have often witnessed cases where the patient was taking from ten to twelve grains of the medicine daily, without vomiting, purging or sweating; so that no effect could be observed, except a gradual reduction of the symptoms, and stethoscopic phenomena."

SECT. VII.—PLEURISY.

1624. This disease consists, strictly speaking, of an inflammation of the pleura; and its pathognomonic symptom, agreeably to common opinion, is a pain in the side, which is augmented by coughing, and a full inspiration. We have already remarked, (par. 1544,) that in inflammations of the thoracic viscera and their appendages, that we had no indubitable sign, by which the inflammation of any particular portion of these parts is indicated.

1625. Dr. Cullen makes pleurisy, (pleuritis,) a species of pneumonia, and defines it as "a pleuritic pneumonia, accompanied by a hard pulse, pungent pain, and for the most part in the side,* particularly increased by inspiration, a difficulty in lying on the affected side, cough very painful, dry in the beginning, afterwards moist, and sometimes bloody."†

1626. Now, there is no one of these symptoms, which distinctly point out an insulated inflammation of the pleura; while on the other hand, none of the symptoms detailed by authors, as constituting peripneumonia, however carefully selected, or earnestly insisted on, declare, that either the lungs, or rather their parenchyma, are involved, to the exception of the pleura. Yet it is a circumstance not to be doubted, that this membrane may be inflamed to the entire exclusion of other portions of the thoracic contents.

1627. It is now, however, sufficiently well established by frequent post mortem examinations, that in pneumonia, it is the parenchyma of the lungs that is the seat of the inflammation; and in uncomplicated pleurisy, that it is the pleura alone that is

* Nothing, perhaps, shows the insufficiency of *pain in the side*, as a distinguishing mark of pleurisy from peripneumony, or other thoracic inflammation, than that authors of the greatest experience differ with regard to the side the patient lies most easily upon. Thus Cullen makes "a difficulty of lying upon the affected side," as an essential part of his definition of pleuritis; while Laennec, Williams, and others declare, that the lying upon the affected side is a character of this inflammation.

† Synop. Vol. II. p. 102.

affected; but the same observations also declare, that these tissues are very much oftener combined in inflammation, than found separately or independently in this condition.

1628. This being admitted, it would seem to be a natural consequence, that this specific location of inflammation should be marked by some constitutional or characteristic symptoms—but this is not exactly so. For had this been the case, the researches of the more modern pathological inquirers, would certainly have detected them, provided we do not include auscultation among the means by which pleurisy or peripneumony may be known.*

1629. Pinel and Brichteau have attempted the diagnoses of pleurisy and pneumonia; and with as much success perhaps as the subject is capable of. We shall therefore quote it, from the *Dict. des Scienc. Med.* tom. 43, p. 202, reserving to ourselves the right of making a few observations.

1630. "The diagnostic of pleurisy is sometimes difficult to establish, especially in children and the insane, and in those who habitually breathe with difficulty. Pneumonia, from its location, resembles pleurisy more than any other affection, especially when the pleura of the lungs is also involved. We must therefore compare the respective symptoms, to understand the difference between them. Pleurisy is attended by an acute superficial pain, which is increased by percussion, by lying on the affected side, by inspiration and coughing. In pneumonia, on the contrary, the pain is deep-seated, obtuse, with a sense of suffocation, and decided oppression. In pleurisy, the cough is commonly dry; the pulse hard, contracted, and frequent. In pneumony, the cough is moist, the pulse often soft; in pleurisy, we rarely see blood mixed with the limited expectoration; in pneumony, it is very common, and the expectoration is very abundant." We believe the above to be as correct as any history that has been given of these two affections; but it will be seen as we proceed, that the distinctive marks are by no means constant.

1631. Fever is a constant attendant upon both peripneumony and pleurisy; though authors, in attempting their diagnoses, make it in the latter more intense than in the former. The pulse in pleurisy, as we have just stated, is declared to be always hard and resisting. This circumstance is so uniform that it has been insisted on by Galen and many others, (*Dict. des Scien. Med.* vol. 43, p. 195,) as pathognomonic, and is strongly enforced by Baglivi; nay, he has said, that from this symptom alone he would not fear to pronounce that the disease was an inflammation of the pleura. "Pulsus durities est signum feré infallibile omnium pleu-

* See the Anatomical Characters of Pleurisy, p. 492.

ritidum. Si duritiem in pulsu deprehenderis, quamvis reliqua signa non adsint, procerto habebas patientem laborare pleuritide." While in peripneumony the pulse is said to be more generally soft and undulating.* These two conditions seem to be acknowledged by almost all writers; yet exceptions so frequently occur, as to render them extremely uncertain guides. Besides, the degrees of fever must be determined with difficulty, as we have no certain means to measure them; nor have we any other method than the touch, to ascertain the degree of force of the pulse; and the result of attempts to determine this state by several individuals in any given number of cases at one and the same time, would, in many of these instances, be very discrepant.

1632. But this fortunately can lead to but little practical error, since it must be by the absolute, and not the comparative state of the pulse, that our prescriptions are to be regulated—for if the pulse be tense and resisting, we must bleed, whether the tissue involved be the pleura, or the air-cells of the lungs themselves. Nor do we hesitate to believe, that the pulse may differ in character, as one or other of the thoracic tissues may be affected; but as "the degree of fever," or "the hardness or softness of the pulse," can have no absolute standard, by which either can be determined with unerring precision, the condition of the pulse in the two affections, cannot, nor should not, be compared with each other; therefore, much must always be left, (whether right or wrong,) to the medical attendant, either to form his diagnosis, or to regulate the nature and extent of the remedial means.

1633. In pleurisy, the breathing is less laborious and oppressed than in peripneumony; for the patient for the most part can lie down; whereas, in the other, it is so confined, that he is obliged sometimes to sit up, to prevent suffocation. In pleurisy, the breathing is also less frequent than in peripneumony.

1634. Laennec declares that "the dyspnœa is very variable as to intensity. In some cases the patients are unconscious of its existence, though it is perceptible to the bystanders; and sometimes it is equally unobserved by both; in other cases it is extremely urgent, and speedily reaches the degree of impending suffocation. When the dyspnœa is not severe, it appears to be rather occasioned by the pain of the side, which moderates the inspiration, than by the compression of the lungs by the effused fluid;† since we find that it commonly ceases after a few days

* Morgagni declares it to be rather slower in peripneumony than natural; and thinks this circumstance alone may betray an inflammation of the lungs. *Epist. xxi. art. 13.*

† "The fever ceases with the stitch, and the patient finding his appetite and strength return, fancies himself cured, though there still exists an abundant extravasation in the chest, which cannot be got rid of for a long period, even

with the pain and other symptoms of acute inflammation, though at this time the effusion is more copious than before." Laennec, p. 443.

1635. In pleurisy, as a general rule, there is a more acute and distinctly located pain, which, when it exists, is sure to be augmented by coughing, or by a deep inspiration. But this symptom is by no means constant, or always to be relied on. Morgagni gives a number of remarkable proofs of this fact.* Pain is sometimes felt on both sides of the chest at the same time, but this does not necessarily constitute a double pleurisy. The pain when felt is generally about the neighbourhood of the nipple. Laennec confirms the opinion of Morgagni, that the stitch is not a constant symptom, being absent, sometimes, in the most acute cases. It sometimes shifts its seat to the other side, but without a transfer of the inflammation. Sometimes the painful stitch is on the side opposite to the inflammation. Laennec does not think that pressure upon the intercostal spaces always excites pain, unless a rheumatic affection be present. While Andral, Broussais, and Forbes, think it far from unusual.†

1636. In pleurisy, there is an absence of that sense of weight and distention throughout the chest, that sometimes attends peripneumony; and though this is not a constant symptom in the latter, yet it is never perhaps felt in the former. But on this last distinction much reliance should not be placed, since Morgagni informs us that it was not present in the case of Coralli, who died of a short illness, from an inflammation of his lungs; for he says, that "when the thorax was opened, we found the upper part of the lungs on the right side, tumid, hard, and stuffed up with blood," loc. cit. art. 12. Yet we have witnessed this sense of weight in a number of instances of peripneumony, though, as just observed, it is not a constant symptom.

1637. The cough in pleurisy is more constant and severe, perhaps, than in peripneumony; it is usually dry in the beginning, and does not become otherwise, unless the force of the disease be abated by prompt and active antiphlogistic means, or until the disease has run its course for several days without opposition, or with but feeble applications; in which cases, expectoration sometimes takes place; but the sputa are tenacious, nearly

should nothing interfere to check the progress of absorption. And the physician who does not explore the chest, must fall into the same error as his patient." *Ib.* p. 444.

* *Epist.* xxi. art. 23.

† So far from pain in any part of the thorax being a constant attendant upon pleurisy, that Pinel, Baglivi, and others say, that it may inflame and even suppurate, without the patient experiencing any sensation that would characterize this affection. This condition of the pleura gave rise to that species, called "the latent, or occult pleurisy."—*Dict. des Sciences Med. art. Pleurisie*, p. 192.

transparent, and resemble very much a thin solution of glue. Mucus is never spat, unless the pleurisy be complicated with bronchial inflammation. Blood does not unfrequently accompany the sputa in every form of pneumonia; it is therefore not characteristic of pleurisy; indeed we believe it never happens in pure pleuritis. Pleurisy is almost always accompanied by a severe lancinating pain upon coughing, or upon a deep inspiration, as we just have noticed; whereas, this is rarely the case when the substance of the lungs is the seat of the inflammation. Pain in this case is almost entirely wanting, or is only obscurely perceived in the course of the sternum, or spine. The flushing of the face does not take place so early, nor is it so intense in pleurisy, as in peripneumony; yet towards the latter period of the disease, where the inflammation has been less obedient to remedies than usual, or where it had been neglected, or timidly treated in the commencement, and especially in persons beyond the meridian of life, the cheeks have an intensely red and circumscribed circle almost constantly upon them. This condition is almost always accompanied with a disposition to coma, a tenacious expectoration, and suppressed or imperfect cough, and a very slow respiration.

1638. It is perhaps at this moment, that the parenchyma of the lungs may become implicated in the inflammation, and the disease now becomes a pleuro-pneumonia. The urine now is almost sure to become sparing, and very high-coloured; which constantly augurs a severe and dangerous state of the disease. In general the patient lies easiest on the side in pleurisy, and on the back in peripneumony.

1639. But notwithstanding every attempt to distinguish the two affections of pleurisy and peripneumonia from each other, much obscurity still prevails upon the subject.* This appears to be admitted by all the best practical writers, and the most experienced pathological anatomists. Morgagni is perhaps less satisfactory upon these points, than upon almost any other of which he treats; to be convinced of this, we need but consult his twentieth and twenty-first letters. Laennec makes the following important remarks. "When pleurisy is simple, we find no sign whatever of inflammation of the pulmonary tissue, even in the vicinity of the most inflamed portions of the pleura; only we find the substance of the lungs in such cases, more dense and less crepitous, by means of the compression produced by the ef-

* We must here be understood to mean, by any of the constitutional symptoms enumerated as attending upon the two affections—for it is now conceded that the stethoscope is able to distinguish them with great certainty; and consequently this very circumstance offers strong inducements to the study of auscultation.

fused fluids. If the extravasation has been very great, the lung becomes flattened and completely flaccid; it ceases to contain air, and consequently to crepitate; its vessels are compressed and contain little blood; and the bronchia, (and sometimes even the largest trunks,) are evidently rendered smaller. The peculiar texture of the lung, however, is still very perceptible, there being no trace of obstruction like that produced in peripneumony; and if air be blown into the bronchia, the lungs become expanded more or less completely." p. 428.

1640. This exposition, will we trust, tend to lessen the reports of the wasting of the lung, in post mortem examinations. On this point we have been led by the reduced size of the lung, into the belief, where there were large accumulations of sero-purulent fluids in the thorax, that it was wasted to the size we found it; whereas, it is much more than probable, that in these several instances, the lungs were only compressed by the weight of the fluid which was surrounding them, as appears to be proved by Laennec.

1641. Laennec alone is satisfactory upon pneumonia; and in his account of pleurisy, he has detailed minutely, and we presume faithfully, the anatomical characters of this disease, and of which we shall make free use. In doing this, we are convinced we shall be performing a useful and an acceptable office, as all his pathological researches are of the utmost value; and we will here take occasion to recommend, the careful study of his invaluable work upon the diseases of the chest.

1642. Laennec* divides pleurisy into, 1. Simple acute pleurisy. 2. Acute hæmorrhagic pleurisy. 3. Chronic pleurisy. 4. Contraction of the chest consequent to pleurisy. 5. Circumscribed or partial pleurisy. 6. Latent pleurisy. 7. Pleuropneumonia. 8. Emphysema. But we do not think it necessary to follow these divisions in detail; we shall endeavour to incorporate the most important parts under one general title.

Of Simple Acute Pleurisy.

1643. "The anatomical characters of pleurisy, are drawn from the state of the pleura, and the alterations and augmentations of the secretion *which always accompanies the inflammation of this, and of all serous membranes.*"†

1644. "The pleura in the state of inflammation presents a punctuated redness; as if one had traced with a pencil upon the pleura,

* Diseases of the Chest, p. 421, et seq.

† We have put in italics, throughout our quotations from Laennec, the points most worthy of observation in our estimation, and which deserve to be insisted on, either as remarkable facts, or as important practical observations.

an infinity of small bloody spots of a very irregular figure, and very close to one another. These red points occupy the whole thickness of the membrane, and have small intermediate portions retaining the natural white colour."

1645. "*Inflammation of the pleura is always accompanied by an extravasation on its internal surface, and which may be considered as the species of suppuration proper to serous membranes. This extravasation appears to commence with the inflammation itself.* It consists, usually at least, and in my opinion always of two very different matters: the one of a firmer, semi-concrete consistence, is usually termed *false membrane*, or coagulable lymph; the other very thin and watery, is called *serosity* or sero-purulent effusion. Both of these exhibit great varieties of character."

1646. "Occasionally, and especially when the effused fluid is in large quantity, the false membranes becomes separated from the pleura, either wholly or in part, and float loosely in the serum."

1647. "The effused fluid which attends the formation of the false membranes, is of a light yellow colour, transparent, or only a little opaque by filaments of the false membrane. It is generally without smell in acute pleurisy; sometimes however it is offensive. The serum is sometimes very abundant, and the membranous exudation very small, and the reverse. *In general, the thickness and extent of the membranous exudation, is in proportion to the inflammation.* In weak leuco-phlegmatic habits, the quantity of serum on the contrary is great; and the disease seems to pass insensibly into hydrothorax. Sometimes the contiguous surfaces of the pleura are united without any serous effusion."

1648. "In cases of peripneumony also, even in those which are slight and partial, we sometimes find the pleura pulmonalis in the vicinity of the inflamed part, invested by a false membrane of small extent."

1649. "I think it necessary to notice a common error respecting the period at which the pleuritic effusion takes place. Many imagine that it does not occur until after a certain time, and even some days; and it is this notion, no doubt, that has given rise to the common expression of *pleurisy terminated by effusion*. These opinions are incorrect. I have several times observed all the physical signs of effusion—that is, ægophonism and absence of respiration and sound on percussion—in the course of an hour after the invasion of the disease, and I have seen the side obviously dilated at the end of three hours. On the other hand, I do not remember to have met with a single case in which the effusion was doubtful, (under the stethoscope,) during the first and

second day, and distinct in the succeeding days. I am convinced, that *the effusion of serum is contemporaneous with the inflammation in all serous membranes.*"

1650. We beg the reader's attention to the several highly valuable practical facts contained in the above extract, as it will necessarily lead him to oppose this disease by decisive measures in its commencement; for it is at this time only it can be done with all the advantage that the interest of the patient requires. From the observations of Laennec it is declared, that the membranous exudation is in proportion to the degree and extent of the inflammation; to diminish this disposition then, becomes a very important indication—the mode of fulfilling it, is at once obvious; namely, by blood-letting and other evacuations.

1651. Another very important part of the history of the inflammation of the pleura, is, that *the effusion of serum is coincident with the inflammation*—this being the case, it will seem to follow, that this will also be in proportion to the extent and duration of the inflammation; consequently, a new and powerful motive for the employment of active measures, in the forming state, (if possible,) of the disease, presents itself. The pathological fact, as regards the economy of all serous membranes when labouring under inflammation, is not only valuable in a practical point of view, but it also reconciles us to those histories of peritoneal inflammations, in which the effused fluid was so enormously great, in a short space of time, as almost to excite disbelief. As this subject is highly interesting, as well as practically important, we are certain we shall receive the reader's thanks for dwelling so much upon it; especially as it is almost untrodden ground. To Laennec then, is the profession largely indebted for his valuable pathological contributions, particularly upon so important a portion of the body as the chest, the diseases of which are no less numerous than severe, and yet none, perhaps, so little understood. The method pointed out by him, by which the various conditions of the thorax and its viscera are ascertained, is not less certain than simple; and we earnestly recommend the study of the exploration of the chest by means of the stethoscope and percussio, to every practitioner of medicine who holds his own comfort and reputation, or the welfare of his patients, in any degree of estimation. But to return—we shall now give Laennec's explanation of the conversion of the "false membranes produced in pleurisy, into a true serous tissue, like that of the pleura."

1652. "This change is produced in the following manner; the serous effusion which accompanied the membranous exudation is absorbed, the compressed lung expands, and the false membrane that invests it and the costal pleura becomes united into one sub-

stance. By and by, this substance becomes divided into layers pretty thick and opaque, which are separated by a very small portion of serosity. About this time blood-vessels begin to make their appearance in it; the first rudiments of which, have the aspect of irregular lines of blood, *much larger than the vessels that are to take their place*. The blood seems as if it had been forced into the substance of the false membrane by a strong injection; and we find the corresponding portions of the pleura redder than elsewhere, and as it were spotted with blood. After a time the pseudo-membranous layers become thinner and less opaque; *the lines of blood assume a cylindrical shape, and ramify in the manner of blood-vessels, but still preserving their augmented diameter*. On minutely examining them at this stage, we find their external coat *consisting of blood scarcely yet concrete*, and very red; within this *there is a sort of mould, or rounded substance, whitish and fibrinous, and formed evidently of concreted fibrin, perforated in its centre, already permeable to the blood, and evidently containing it*. Eventually, the layers of the false membrane become quite transparent, and nearly as thin as those of the ordinary cellular tissue and the blood-vessels resemble in every respect those which ramify on the inner surface of the pleura."

1653. "*After they have attained this stage, whatever may be their extent, they do not in general, affect the health.*" This is a curious fact; especially as it is at once at variance with all our preconceived notions and apprehensions upon this subject. He further adds, "*the respiration even, except in some particular cases, does not suffer from their presence*. They possess in fact, all the characters of the natural serous tissues, being capable of exhalation and absorption like them, and often containing in cases of dropsy, a considerable quantity of effused serum. They sometimes even inflame, and in this case *become invested with false membranes similar to what they themselves had originally been*—this is however very rare."

1654. M. Laennec in the conclusion of this very interesting history of the production of new membranes, makes a practical remark, which is contrary to the popular opinion on the subject of pleurisy. He says, "it is found, that in cases of a second attack of pleurisy in a person whose lungs adhere to the pleura from the effects of the first, the inflammation, albuminous exudation and sero-purulent effusion, do not invade the adherent parts; inasmuch that we may lay it down as a principle, that *the severer has been the attack of pleurisy, the less likely is a return of the same disease*. The following remarks on the condition of the chest after inflammation is removed, are curious and interesting.

1655. "I have known cases in which the thoracic resonance and respiratory sound have not completely returned before the expiration of six months, though the patients, judging from the continuance of the pain and fever, asserted that they had only been ill, in all, four or five days. It is very rare even in the mildest cases of acute pleurisy, and in which the inflammation is the most speedily checked, *for the effusion if at all considerable, to be completely absorbed and the false membrane converted into cellular substance, in less than a month; most commonly this is not affected in less than two or three.*" p. 444. These facts are of great value, and deserve to be borne in mind by every practitioner.

1656. In addition to the common or local symptoms of acute pleurisy, the physical signs are next in importance. This part of the pathology of the chest, is largely indebted to a number of living cultivators of the auscultic branch of medicine, as Andral, Forbes, Williams, &c. but to none so eminently as to the lamented and amiable Laennec. It seems to be admitted by common consent, that he was the most accomplished of those who made mediate auscultation a study. His facts are never disputed; nor his veracity impugned—what he declares to be the result of his own observations, no one hesitates to believe. He has effected, we must repeat, an entire revolution in the study of the diseases of the chest, by the extent, and accuracy of his pathological details; and has pointed out a certain, and unfailing method of exploring the healthy, and pathological condition, not only of the pulmonary organs, but of the heart, and larger blood-vessels themselves. We cannot feel it necessary to make an apology for the extensive use we have made of this justly celebrated physician's work, as it is in the hands of but few, as we are confident, that by doing so, we are but promulgating some of the most valuable practical discoveries of modern times. We shall, therefore, without hesitation, detail the more material points he has insisted on, in his account of the "Physical Signs of Acute Pleurisy." He says—

1657. "As soon as effusion takes place," (and he has declared, as we have observed above, that this, (the effusion,) is contemporaneous with the inflammation of the pleura,) "the natural sound of the chest on percussion, fails over the whole space occupied by the fluid. From this result simply, we could not indeed be certain that the disease is pleurisy or peripneumony; though the common symptoms, general and local, must assist us in making the distinction." "But," he adds, "in the case of pleurisy, it frequently happens, that, *in the course of a few hours from the attack, the dull sound exists over the whole affected side, or, at least, over its lower half—a thing which*

is never, or almost never, observed in peripneumony. But mediate auscultation furnishes us with much more certain means of discriminating these two diseases, and enables us to ascertain with precision, not merely the existence of the effusion, but its quantity. The signs by which the cylinder effects this, are, 1st, the total absence, or great diminution, of the respiratory sound; and 2d, the appearance, disappearance, and return of ægophony."

1658. "When the pleuritic effusion is very copious from its very commencement, *the sound of respiration is then totally absent, through the whole of the side affected, except in a space of three fingers' breadth along the vertebral column;* where it is still heard, though less strongly than on the other side. This complete disappearance of respiration after the existence of disease for a few hours, *is quite pathognomonic of pleurisy with copious effusion, whether there exists pain of the side or not. In peripneumony, the disappearance of respiration is gradual, and is perceived to be unequal in different parts of the chest.*" p. 436.

1659. "*In pleurisy, with copious effusion, on the contrary, the loss of the respiratory murmur is sudden, equable, uniform, and so complete, that no effort of respiration can render it perceptible.*" p. 437.

Prognosis.

1660. Pleurisy, like all the other phlegmasiæ, may terminate variously; and especially, like peripneumony—we have already noticed these terminations at par. 1571. As a general rule, this disease is more severe and threatening in the plethoric and robust, than in the more feeble; and it is particularly dangerous in constitutions that have been impaired by hard drinking.

1661. Women who are not pregnant, support this disease better than males; but if pregnant, it is always of doubtful issue. This was perhaps first observed by Hippocrates; and the truth of the observation has been constantly confirmed by all subsequent writers. Relapses of pleurisy are always alarming; as they are almost always fatal. Nor is this of difficult explanation; the disease recurs at a moment, in which the system is almost exhausted of its powers, and altogether incompetent to support the further depletion, that is necessary, to subdue the new accession of disease.

1662. A diarrhœa supervening on the fourteenth day, is favourable, agreeably to Van Swieten; but one occurring at the commencement of the disease, is bad, according to Triller. But neither of these observations have been confirmed by our own

experience, for we have constantly found, that a diarrhœa of any extent, at any period, was always unfavourable in pleurisy; and this has appeared to us to be especially so, where the disease required large losses of blood; or, in other words, where the pleura, from the great severity of the symptoms, appeared to be extensively involved in inflammation. The diarrhœa in these cases seemed to injure the recuperative powers of the system, without diminishing the local affection. We may further remark, that the occurrence of diarrhœa is by no means frequent, where the cure of pleurisy is attempted early, and by adequate means; for, as the disease is very much taken out of the hands of nature, the system has no need, if we may so express ourselves, of having recourse to a critical discharge on the fourteenth day; nor is it so liable to suffer from a metastasis in the early part of it.

1663. Our own experience then, is in strict conformity with that aphorism of Hippocrates, which declares, “A pleuritide aut peripneumoniâ detento, alvi profluvius superveniens, malum;” and the cause of its being bad, perhaps is, that it declares a metastasis, and not a critical effort.

1664. If the breathing be laborious, or orthopnœa be present, it is always bad in proportion to its extent—hence, a free respiration is constantly considered as a favourable sign, especially if it have been procured by adequate depletion. If the disease be attended with free expectoration, it may be considered as presenting less risk; while its absence must always be considered as a bad sign; these circumstances have been acknowledged as truths by the experience of every body since the time of Hippocrates.

1665. The urine also furnishes us with signs of pretty certain import—thus, a small quantity without deposition, is bad; an abundant one with sediment, is favourable; while a bloody urine, with a black settling, is pretty certain to be fatal. Sweating, without a diminution of the distressing symptoms, is rarely productive of relief; and delirium must always be regarded as a highly dangerous symptom, especially if it persevere after the system is too much reduced to bear general blood-letting.

1666. We have just said, that pleurisy, like all the other phlegmasiæ, may terminate in several ways—by resolution is the most common, as well as the most fortunate; and from the important discovery of Laennec, as mentioned above, namely, that effusion was co-evil with the inflammation, we are led to attempt its diminution by the reduction of the phlogistic symptoms; and happily this very often succeeds.

1667. In modern practice, in this country especially, where active means are early had recourse to, we seldom have oppor-

tunities of witnessing "resolution" procured by certain discharges, upon what are termed the critical days—such as hæmorrhages from certain parts of the body, as the nose, or hæmorrhoidal vessels in men; or from the uterus in women. By excessive discharges of urine, or very copious expectorations, profuse sweats, or importunate diarrhœa. We think we have oftener seen abscesses, critical, than any other kind of termination—these may form upon almost any portion of the body, without our being able to decide why the particular part was selected; the most common however are the glands of the axillæ, and parotides.

1668. It may terminate by suppuration, or rather, agreeably to Laennec, by a particularly copious effusion, or "extravasation," from the whole of the pleural surface that is involved in the inflammation, as we have observed above, par. 1645.

1669. This change, when so abundant as to relieve the engorged state of the vessels of the pleura, is announced by symptoms similar to those that forerun suppuration properly so called—such as irregular chills in various parts of the body, but especially in the chest, followed by evanescent heat, increased difficulty in breathing, an incapacity to dilate the affected side of the chest; the necessity of lying on the diseased side; "an extreme sense of suffocation upon pressing the hypogastric region." Pinel. An increase of size of the affected side, with a separation of the ribs, and a sinking of the shoulder blade; fluctuation between the ribs, and a swelling of the breasts.

1670. Percussion produces a dull sound; and when the patient is shook, a sensation like water agitated in a close vessel, is perceived by the patient; and ægophonism by the stethoscope, when the patient is made to speak. Sometimes it terminates by the effusion of blood, and then becomes the hæmorrhagic pleurisy of Laennec. Gangrene, as we have already observed, is a very rare termination of this disease.

1671. Pleurisy may be complicated with the inflammation of any of the thoracic viscera, and it will then receive a name compounded of the parts involved, (par. 1543.) We have already mentioned the consequences following the effusion of serum within the cavities of the thorax, (par. 1645, &c.)

Acute Hæmorrhagic Pleurisy.

1672. This state of the pleura has but lately attracted attention—not that the appearance of blood with effused fluids found in the chest had escaped the notice of the pathological anatomist, but because no sign was known that could point out this condition of the pleura when its surface under inflammation was pouring out serum and a greater or less quantity of blood. It is to the

industry of the modern cultivators of auscultation that we are indebted for a knowledge of this variety of pleurisy, and the mode of detecting its existence. As this form of pleural inflammation has its peculiarities, we have thought proper to notice it with some of the other forms of this disease. As regards ourselves, we hesitate not to confess, we have never been sensible that we have witnessed the disease during its progress; though we well remember that the principal phenomena recorded by writers, and especially Laennec, were present on opening the chests of two who had died of thoracic inflammation; but in these cases, the blood was thought to be an accidental *rupture* of a blood-vessel upon the surface of the pleura, and not a circumstance of frequent occurrence, and one more or less belonging to an inflamed condition of the pleura.

1673. By an acute hæmorrhagic pleurisy, Laennec informs us he means "the reunion of hæmorrhage, (usually slight,) with inflammation of the pleura." "It differs from the simple acute pleurisy, not merely in its pathological anatomy, but even in its progress and treatment." The phenomena that present themselves, are, 1. The effused serum is tinged with blood. 2. It is small in quantity, and coagula rarely appear. 3. *Coagulable lymph* is secreted in much smaller quantity than in common pleurisy. 4. The false membranes are thin, and sometimes only cover a small portion of the pleura. 5. "Generally speaking, in the hæmorrhagic the effusion of *fluid* is more abundant than in the simple pleurisy. In the former, also, the tendency to absorption is much less, and the cure when it takes place, is much more protracted. This is the case which most commonly constitutes the *acute empyema*," p. 431. 6. Instead of a new serous membrane being formed, a fibrous or fibro-cartilaginous one is produced, which want the soft and yielding disposition of the serous tissue.

1674. The consequences of this difference of product are severely felt by the patient; as by this arrangement the lung becomes bound down by it in the compressed state that the fluid effused had left it, in the cavity of the thorax; and in these cases it is always, as just noticed, in large quantity, and remains a long time, as the disposition to absorption is diminished in these cases. But after a certain time the fluid becomes diminished by absorption, but the lung cannot expand itself in consequence of its being retained in its position by the production of the fibro-cartilaginous texture just spoken of—one of two things must happen to fill up the vacancy occasioned by the removal of the effused serum; either the ribs will be drawn inwards so as to touch the lung, or the part that was occupied by the effused fluid, will be filled by an æriform exhalation. The first is the most common,

and constitutes the “contraction of the chest consequent to certain pleurisies.”

1675. The symptoms of this species of pleurisy are not very distinctly marked; and the disease always requires a long time to cure itself. The absorption of fluid requires a number of months, and the complete contraction of the chest. After these have taken place, the new fibro-cartilaginous membranes of the pleuræ come in contact, and by the intervention of a gelatinous matter, they become agglutinated—this is a mode of cure which nature sometimes adopts; it however does not leave the patient free from inconvenience, as a permanent difficulty of breathing is apt to remain.

Chronic Pleurisy.

1676. This species of pleurisy is comparatively but little known in this country; while in France, and in other portions of Europe, it would appear to be one of frequent occurrence, as it is described by a number of the continental writers. This at first sight might appear singular; especially as the acute form of this disease is one, that is very frequently met with. These facts, however, are not beyond explanation. In this country, the habits of practice are, without exception almost, those of great activity; every acute disease, from the rapidity with which it usually runs its course, must be met with adequate vigour of treatment, if success is to attend the efforts to arrest its course—consequently, pleurisy being a disease of great suffering, and one about the treatment of which, there is less dispute than almost any other, it is sure to be met with adequate depletion; the disease is therefore properly subdued, or it proves fatal in a few days. In either case, the disease has not an opportunity to assume a chronic form. While in France, and in other portions of Europe, this disease is of milder type; which, with the “*expectant*” method of cure which so generally prevails, give it an opportunity to assume a lengthened form. But chronic pleurisy is nevertheless occasionally met with, and that at times, in its worst forms.

1677. Pleurisy may become chronic, from the acute form being changed; or it may be chronic, agreeably to Laennec, p. 446, from its origin.

Anatomical Characters.

1678. In these it does not differ essentially from the acute; yet the pleura is of deeper colour, and the serous effusion is more abundant, less limpid, and much loaded by *albuminous flocculi*;

so much so, as sometimes to give a puriform appearance to the effused fluid. It assumes an intermediate consistence between the sero-purulent effusion and the false membrane.

1679. The fluid extravasated in chronic pleurisy is remarkable for the strength and the peculiarity of its odour. Laennec calls it "alliacous;" others compare it to phosphorated hydrogen; while Professor Nespoli, Dr. Forbes informs us, likens it to asafoetida. And Dr. Forbes adds, that some have considered this smell as declaring a communication between the bronchia and pleura; and from a recent case that we witnessed, this circumstance appeared to be confirmed. This form of pleurisy has but little disposition to terminate by resolution; for in cases of extravasation of months standing, Laennec tells us, that "no mark of any step towards the conversion of the false membranes into cellular substance, (par. 1655,) could be observed." p. 447. The effusion has a disposition to augment; the affected side enlarges; the intercostal spaces become broader, and assume a level with the ribs, and sometimes even higher.

1680. The lung of the affected side, (par. 1639,) becomes reduced to a thickness, not exceeding six lines; and "without a careful examination, might be considered as entirely destroyed." "The pulmonary tissue is soft, pliant, and dense like a piece of skin, without any crepitation, paler than natural, grayish, and almost entirely without blood." "This case constitutes the purulent empyema." "It is in this species of pleurisy, that we must refer those histories of lungs entirely destroyed by suppuration." (par. 1640.)

Signs and Symptoms.

1681. Laennec declares the physical signs of chronic pleurisy to be the same as in the acute, with the exception that ægophonia is rarely met with in the former, owing to the effusion being very abundant before the physician is consulted. The disease is generally insidious; the stitch, if it exist, is slight, and transitory. A fever steals on by degrees; the cough however is more frequent than in the acute disease, and is attended by a mucous or even a purulent expectoration. Emaciation follows at a quicker or slower pace; the digestive powers become impaired; the sensibility of the stomach is sometimes so great, as not to bear the lightest food or drink. Sometimes so copious a puriform expectoration takes place, as to give rise to the belief that pus has made its way into the bronchia; this is observed in many cases where no such communication exists.

1682. Chronic pleurisy is the purulent empyema of surgeons; and though the constitution is in a more critical state, than in the

acute, yet an operation bids fair to succeed. There is less chance indeed of success from an operation in the acute, as the lungs cannot expand themselves after it, as they are tied down to the spine. This difficulty does not exist in the chronic pleurisy; for there is either no false membranes, or if there be, they are soft and easily destroyed. This disease is essentially chronic; it never presents the same intensity of fever or pain as the acute. It only attacks cachectic habits; and especially when this state proceeds from a tuberculous state of the lungs. This form of pleurisy is almost always confounded with phthisis.

1683. Laennec has an interesting chapter on the contraction of the chest, the consequence of pleurisy; he thinks this particularly occurs after the hæmorrhagic species. This complaint is almost new to the medical world, but is now exciting great attention. The entire chapter might be introduced with profit to the reader, did not its length prevent our doing so—and to be master of the subject would require an attentive study of all its details; to abridge it, would be to render injustice, to almost its discoverer, without materially serving the student. We therefore earnestly recommend the study of Laennec's masterly work upon the diseases of the chest—a work that leaves every thing upon this subject far behind it. The reader may also consult with advantage his account of “latent pleurisy.”

Of the Treatment of Pleurisy.

1684. We have already under the head of pneumonia dwelt upon the mode of treatment so long, that little remains to be said upon the treatment of acute pleurisy; we shall therefore refer to what has been already proposed for the reduction of the inflammation of the pleura. We are however of opinion with almost all the writers upon this subject, that pleurisy in general requires both more ample, as well as more frequent abstraction of blood than pneumonia, especially by general bleedings.

1685. Leeching and cupping are most successfully resorted to, after the pulse does not seem to justify further depletion from the arm. We entirely agree with Laennec, that cupping is the preferable of the two local means of drawing blood; and the reasons he assigns for the preference to cupping, altogether coincide with our own experience, notwithstanding the high authority of Dr. Forbes* is against it. As this is a matter of considerable

* Dr. Forbes in a note observes, “I cannot at all agree with our author, (Laennec,) in giving the preference to cupping over leeching, in pleurisy; and I somewhat suspect that, in this, as in some other cases, he has visited the sins of the advocate,” (alluding to Laennec's hostility to Broussais,) “of certain measures upon the measures themselves. There are many obvious reasons

practical moment, we shall employ the arguments of Laennec upon this point.

1686. "Leeches are very often tedious and painful in their action; sometimes they scarcely fill themselves with blood; and at other times their punctures will continue to bleed for twenty-four hours, and can only be closed by the cautery."* And he declares that he has even known fatal bleedings from their bites, (p. 470.) Besides the objections just stated, we may add, that we think we have seen decided mischief arise from the exposure, cold, and wet, that constantly attend the application of leeches. We have therefore for many years past preferred the cupping, either by scarification or dry, as necessity seemed to require. We constantly prefer the first, when the abstraction of blood is absolutely required; and the latter, when the emptying of the capillaries would answer. When we have directed the dry cupping, we have caused them to be kept on until a slight vesication would appear—the cups are then to be removed. On this account the glass cups are to be preferred; but if these cannot be commanded, the others should be left on for forty minutes or three-quarters of an hour; the surface may be dressed with simple cerate.

1687. In pleurisy, as well as in pneumonia, it should be remembered, that it is highly important to make a speedy and powerful impression upon the pulse—we never direct the loss of blood by the number of ounces; the capacity to expand the chest, and the alleviation, or entire cessation of pain, is the only safe rule, in such cases. This abatement of unpleasant symptoms however, may be of short duration; the symptoms in full force may return in a short time, even after ample depletion; and especially, after the first bleeding. In this case, we care not for the shortness of the interval that may have existed between the bleeding, and the return of the unpleasant symptoms—we instantly cause the loss of more blood, and regulate its quantity by the same rule. The many terrible consequences from the imper-

I think, why leeches must in a great majority of cases of *pleurisy*, be preferable to the application of cupping-glasses. One of the many practical advantages of accurate diagnosis in pleurisy and peripneumony, is the much greater benefit derived from local bleeding in the former than in the latter disease." Now we would ask, is not cupping a mode of local depletion, as well as leeching, and this sometimes without some of the penalties that attach to leeching? It is certainly (cupping) much more under our command than the other, which in a practical view is sometimes of the highest consequence.

* We have found the application of punk or spunk, in every instance in which we have tried it for obstinate bleeding from leech bites, to be altogether effectual in arresting it—a piece, or pieces, sufficiently large to more than cover the wound, or wounds, are to be applied, and maintained in their position by a compress and bandage; the bleeding ceases almost instantaneously, after the application.

fect reduction of inflammation in pleurisy, should keep us constantly on the alert, to guard against them; for in no disease scarcely, is less to be apprehended from large losses of blood than in pleurisy; and in none perhaps, are the benefits from it more important and decided, or in which, greater injury may follow the neglect of it.

1688. Sydenham was in the habit of bleeding freely in this disease, and has left us his plan of using the lancet in these words. "As soon as I am called in, I order about ten ounces of blood to be drawn from the arm of the affected side." "On the same day, (the first of my attendance,) if the pain be very acute, I order as much blood to be again taken away; or else the next day; and if the pain and other symptoms rage severely, I bleed in this manner four days running. But if the disease be less violent and dangerous, and therefore allows me to proceed in a gentler manner; or if the patient be too weak to bear repeated bleedings at such short intervals, then after bleeding twice, I interpose a day or two between each bleeding afterwards. In this case I make the contraindications my rule; considering on the one hand the violence of the disease, and comparing it with the weakness of the patient on the other."* He tells us also, that he had seldom known a confirmed pleurisy subdued by a less loss than forty ounces of blood. We are led however to suppose, that he seldom or never exceeded ten ounces at a bleeding; and hence the necessity of its frequent repetition—now, we are certain, that the rule we have laid down for the quantity of blood to be drawn at a time being regulated by the relief it is made to afford, is very much the better practice; inasmuch, as the relief is more immediate; the reduction of the inflammation more certain; the course of the disease much shortened; and the convalescence very much better confirmed.

1689. After due depletion from the circulatory system, purgative medicines should be had recourse to—they are decidedly more efficient in pleurisy than in pneumonia; and this probably arises from the difference in nature of the tissues involved. For purgatives are pretty constantly observed to be more useful in affections of the serous, than in those of the mucous membranes. We almost always commence with a few grains of calomel, and carrying it off by magnesia, castor oil, or the neutral salts. Catharsis is to be produced, whenever the bowels become a little tardy—two or three evacuations should be procured daily, during the more active stage of the disease; and one certainly per diem during its decline. But Laennec thinks they are particularly indicated after blood-letting, and when the symptoms give

rise to the suspicion, that the pleurisy is of the hæmorrhagic kind.

1690. Much advantage is certainly derived from the exhibition of the nitro-antimonial powders—they frequently supersede the necessity of giving any other medicine, for the double purposes of purging, and sweating. The nitre however sometimes disagrees with the stomach; giving a sensation of gnawing and coldness—but this is easily obviated by the addition of a grain of camphor to each dose. Should they operate too freely upon the bowels, they should be discontinued for a time, or given at longer intervals. (See recipe, page 115.)

1691. Blisters are of great value, when their application is well timed; and are as certainly mischievous, when they are employed before the phlogistic condition of the system is sufficiently reduced. We have already explained what we mean by that condition of the system, (which has been happily,) termed the blistering point. (See par. 258.) A blister, to be as successful as it may be, should be of sufficient dimensions, and be applied over the pained part, or as near it as possible. It may be suffered to remain until it draw amply; for in pleurisy we believe, an advantage is derived from a large cuticular effusion being produced. The surface should be dressed a few times with the yellow basilicon; the common dressing with cabbage leaves should never be permitted.

1692. Laennec advises the exhibition of tartar emetic during the active stages of pleurisy—we have already put the reader in possession of his opinions of this medicine. (See page 467.) “When the fever and pain have ceased,” he observes, “the disease then enters the chronic stage, or that of absorption, which is seldom of less than a month’s duration, and may sometimes extend to two years.” p. 473. When an acute pleurisy has become chronic, he thinks it has a great analogy to dropsy; and it is at this time he thinks that blisters applied to the affected side, become very useful; later in the disease, he thinks a seton is still better.

1693. It is of much importance that the patient be well supplied with drinks—such as barley water, toast water, flaxseed tea, slippery-elm bark tea, or bran tea. These should be drunk cool, and in liberal quantities; they may be acidulated by lemon juice in a little currant jelly. No stimulating substance whatever should be permitted, be the pretext what it may—in a word, the most rigid antiphlogistic regimen should be persisted in. (See pars. 215, 216, 217.)

1694. Laennec says, that “during the first days of the disease, the patient, (unless an infant,) ought to receive no food; but should be allowed some liquid aliment, at least, after three or four

days. This indulgence, (forbearance,) is the surest way of escaping those interminable convalescences, occasioned by the passage of the pleurisy into the chronic state." p. 471.

1695. These suggestions are too loose and ambiguous for any valuable practical purpose; for should they be literally followed, or understood, it might lead to great errors in diet. There appears to be a distinction made between "*food*" and "*aliment*;" now food and aliment in the English language mean precisely the same thing, consequently something is granted by way of nourishment on the one hand, that is ordered to be withheld on the other. Besides, the qualifying term "*liquid*" added to the word "*aliment*," seems to declare that any nourishment in a liquid form would be eligible, than which nothing can be further from sound practice; for any of the animal jellies can be given in a "*liquid*" form, consequently they are not prohibited by the terms of M. Laennec's text. Now, we believe that this gentleman would have shuddered at the very idea of giving any animal substance however dilute, in the acute stage of pleurisy. Besides, neither vinous nor alcoholic preparations are forbidden by this direction; since either could be easily added to any "*fluid aliment*" prepared for the patient, without infringing on the direction. We are therefore of opinion, that the directions respecting the food of the patient, was a slip of the author's pen; while we think that a little blame should attach to his very able and learned translator, for allowing these rules to pass unchallenged.

1696. We are equally surprised that an exception should be made in favour of an "*infant*;" for as far as our experience goes, we have ever found it necessary to be as rigorous in diet with children as with adults. If they are at the breast, we do not permit them to be nursed but at long intervals, and then only in small quantities, and at the same time to put the nurse, be she the mother, or a hireling, upon an abstemious, vegetable diet. Indeed, we are of opinion, that children bear these privations even better than more aged persons—but be this as it may, we are sure they require the abstraction of nourishment of every kind, as certainly as the adult, and to as great an extent.*

1697. We therefore under these impressions, never permit a pleuritic patient, be he young or old, to have any other food during the active stage of the disease, than the thin vegetable jellies named above; that is, the linseed tea, barley water, &c. (par. 214,) these serving the double purposes of drink and nourishment.

1698. Sydenham speaks highly of the practice of allowing the

* "As to diet, I forbid all flesh-meats and the smallest flesh-broths, and advise the patient to sup barley broth, water gruel, and panada; and to drink ptisan made of pearl barley, sorrel, and liquorice roots, &c. boiled in water."
—Sydenham, Vol. I. p. 374.

patient to sit up; he says, "to prevent the patient's being overheated during the continuance of the distemper, I allow him to sit up a few hours every day, as his strength will permit; which indeed is of such moment here, that if he be kept always in bed, neither the plentiful evacuations of blood, nor the most cooling remedies, will sometimes at all avail in conquering the symptoms." Vol. I. p. 376.

1699. Laennec is also an advocate for this plan; he says, "it has frequently appeared to me to have contributed powerfully towards subduing the inflammation." p. 471.

1700. The plan laid down for the treatment of pleurisy, will for the most part be sufficient for its removal; yet occasionally it proves fatal under the best devised plan, and the most vigorous and best adapted treatment. While, on the other hand, we are told by Laennec, that, "in this, as in most acute diseases, the unaided resources of nature are very great; and that a great number of pleurisies, if left entirely to themselves, would do well. This much is certain, that a cure frequently takes place when the treatment amounts almost to nothing, or even when it is conducted on principles opposed both by reason and experience. It is even now by no means uncommon, particularly in country places, to meet with persons who attempt the cure of pleurisy according to the sudorific plan of Paracelsus and Van Helmont; that is, with hot wine or brandy, and aromatics, such as pepper, ginger, cinnamon, and juniper, or coriander berries; the dung of horses or sheep infused in wine, &c. And yet all the patients of these sages do not die: a salutary crisis occasionally triumphs over both the disease and the treatment." p. 473.

SECT. VIII.—PHTHISIS PULMONALIS, OR CONSUMPTION.

1701. In a work, professing to be practical, it becomes as much a duty to treat of the diseases which common experience and consent declare to be generally incurable, as of those, that are strictly amenable to medical discipline, or directions. We therefore feel it is right to speak of the common, and truly formidable disease, phthisis, though we are obliged at once to confess, it almost always baffles the best concerted means we can employ. Though this is strictly true, yet with even our limited acquaintance of its *absolute nature*, we have it very constantly in our power to mitigate the violence of its symptoms, to diminish the sufferings consequent upon its progress, and, in some instances, even to retard its fatal termination, or effect a cure.

1702. If this be true, we have strong inducements to investigate its nature, by studying its etiology and pathology; ascertaining its peculiarities; detailing its symptoms; discriminating its va-

rieties; determining its location and extent; and endeavouring to lay down the best plan of treatment that our present limited knowledge of some of the great points just named, will permit us to do.

1703. It has been asked by Broussais,* Laennec,† and others, is phthisis a curable disease? this, with certain strict limitations, has been answered in the affirmative by both the gentlemen just named; and others have declared, that their practice has afforded a number of successful cases. The first named, thinks, that phthisis may be cured, when there is but one or two tubercles, and when these have softened, and been expectorated; as the tubercular cavities may then cicatrize, and the patient be cured. Here indeed is but a very limited condition to rest the hope of cure upon; especially, as we must all believe, with Broussais himself, that the cause which gave rise to one or two tubercles, may operate to produce a very much more abundant crop, though these may be in slow succession. He appears, however, to admit the possibility of cure in his *Exam. des Doct. Med.* upon a more extensive scale, than he does in his *Phlegm. Chron.*

1704. Indeed, cures would be rendered very probable, were his hypothesis of the cause of tubercles true; namely, that they are the *product* of inflammation, however excited in the pulmonary tissue. Were this so, it might perhaps often happen, that the disease could be arrested, and even cured, by taking the disease in its forming state, or even in its first stage. But unfortunately, the basis of this expectation is not well founded, as we shall have occasion to say presently; consequently, the mode of treatment predicated upon it, cannot be successful.

1705. As regards such, who have declared their belief, (honestly, without doubt,) that they had cured consumption, we must believe they were almost always in error; as these declarations have come from those, who had very partially investigated the pathology of the disease, or perhaps not at all; and who, consequently, were almost altogether ignorant of the nature of tubercles, and not in possession of the signs that discriminate chronic catarrh from a true phthisis.

1706. On this point Laennec‡ very justly observes, “to many practical physicians, who are not anatomists, the possibility of a cure taking place after the formation of an ulcerous excavation of the lungs, may seem quite admissible. This opinion, however, will in all likelihood appear quite absurd to those who have paid much attention to morbid dissection. Previously to the knowledge of the true character and mode of development

* *Phlegm. Chron.* Vol. II. p. 151.

† *Diseases of the Chest*, Forbes' Translation, p. 299.

‡ *Ibid.*

of tubercles, and while consumption was considered simply as a consequence of the chronic inflammation, and slow suppuration of the pulmonary tissue, medical men did not question, any more than the vulgar do now, the possibility of curing this disease by a suitable mode of treatment, especially if taken in *time*, and during the *first stage* of it. It is now, however, the general opinion of all those who are acquainted with the actual state of our knowledge respecting the pathology of diseases, that the tubercular affection, like cancer, is absolutely incurable, inasmuch as nature's efforts towards effecting a cure are injurious, and those of art are useless." "Crude tubercles tend essentially to increase in size, and to become soft. Nature and art may retard, or even arrest their progress; but neither can reverse it. But while I admit the incurability of consumption in the early stages, I am convinced from a number of facts, that in some cases the disease is curable in the latter stages; that is, *after* the softening of the tubercles, and the formation of the ulcerous excavation."

1707. So far Broussais and Laennec agree, with this exception, however, that the former has limited within a much narrower compass the condition of the lung necessary to a cure, than the latter. It would not appear essential to the cure of consumption, that the tubercles should be so few as stated by Broussais; since, if all that exist in the lungs should soften down, and be expectorated at the same time, the chance of recovery might be equal. But unfortunately, the history of these bodies furnish us with but slender expectations that this either has, or will take place frequently. Indeed, it seems to be a point on which all the late pathologists agree, that there are successive crops of these bodies in the lungs; and that no sooner has one set run on to suppuration, than another succeeds until life is extinguished. At other times, tubercles are observed to be in all the various stages of their existence, in the same lungs, at one and the same time.

1708. Thus, miliary tubercles, some of larger size, but yet solid; those that were softening; others softened; many suppurate; and ulcerous excavations, betraying either the recent, or long evacuation of their pus, have been found at one and the same time, in the same individual. Now, it would appear from the researches of Broussais, Laennec, Bayle, &c. that this is the almost constant progress and termination of tubercles that do not run their course with great rapidity; for in this there is a very great variety depending principally upon the force of the exciting cause; the susceptibility of the system; and the opposition to their development, from dietetic observances, medical discipline, &c. This being true, we see that consumption, though

not an absolutely incurable disease, yet is one in which the coincidences, essential to success, can very rarely combine. These facts, however, should teach the practitioner reserve in his prognostic, and still more in inspiring confidence, where nothing can be hoped for.

1709. Laennec has related a most interesting case, among several others, in which every thing was to be dreaded, but in which an entire cure was effected. As this case cannot fail to interest, we shall relate it at length, especially as the work from which it is derived, is in the hands of but few in this country, though its merits claim it should be possessed by every practitioner.

1710. "*Tuberculous Phthisis cured.*—An English gentleman, aged thirty-six, detained at Paris as a prisoner of war, in September, 1813, had an attack of hæmoptysis, followed by a cough, at first dry, but in the course of a few weeks accompanied by purulent sputa. To these symptoms were added a well-marked hectic, considerable dyspnœa, copious night sweats, emaciation, and great debility. The chest sounded well every where except under the right clavicle, and in the axilla of the same side. The hæmoptysis returned in a slight degree, now and then, and in December he had diarrhœa, which was with difficulty checked by astringents. In the beginning of January he was so much reduced, that both MM. Hallé and Bayle agreed with me in opinion that his death might be daily looked for. On the 15th of January, during a severe fit of coughing, and after bringing up some blood, he expectorated a solid mass, of the size of a filbert, which upon examination, I found to be evidently a tubercle in the second stage, surrounded apparently by a portion of the pulmonary tissue. This patient remained in the same degree of extreme emaciation and debility all January, being expected to die daily; but in the beginning of February, the perspiration and diarrhœa ceased spontaneously, the expectoration sensibly diminishing, and the pulse, which had been constantly as high as 120, fell to 90. In a few days the appetite returned, the patient began to move about in his room, his emaciation became less, and against the end of the month, his convalescence was evident. In the beginning of April he was perfectly recovered, and his health has continued good ever since, without even the least cough, and without his being at all guarded in his climate or regimen. In 1818 this patient consulted me for a different complaint, and I took the opportunity of examining his chest by means of the stethoscope. The only thing I could detect, was the comparative indistinctness of respiration in the superior portion of the right lung, as low as the third rib. This part, however, sounded as well on percussion as the opposite side, and there was no pec-

toriloquism. From these circumstances I am of opinion, that the excavation which contained the expectorated tubercle must have been replaced by cellular or fibro-cartilaginous cicatrice; and as the total absence of cough, dyspnœa, and expectoration for so long a period, forbids the supposition of the existence of others in the lungs, I think we have a right to consider this patient as perfectly cured. In 1824, this gentleman was examined at Rome by Dr. Clark, an English physician, who practises there with great distinction, and who recognised him as the subject of the case just detailed. I saw him also the same year, and found him precisely in the same state as in 1818." To this account, Dr. Forbes adds, "I learn from Dr. Clark, who is now resident in London, that Mr. G. is still living, and in good health. Several well-marked instances of expectorated tubercles are upon record. A very remarkable case is recorded in the *Journal de Med.* tom. 78, for March, 1789. In this case the patient also recovered, though previously on the brink of the grave." p. 320.

1711. Bayle's* fifty-fourth case is also an instance of consumption being cured, but not by the expectoration of tubercles. It was thought by both Bayle and Laennec to be a case of chronic catarrh, as neither at the time considered it possible to cure consumption. Bayle, in his work, makes no particular observations upon the case; but Laennec says, that some time after, he had an opportunity to satisfy himself of the nature of the disease by the cylinder, and declares, "that our patient had more than a mere catarrh. His respiration is quite perfect throughout the whole chest, except at the top of the right lung, in which point it is entirely wanting. On this account I am certain that this portion of the lung had been the seat of an ulcerous excavation, and that this has been replaced by a complete and solid cicatrice." p. 322.

1712. Laennec, p. 323, concludes his interesting observations by the following important remarks. "To conclude, I think that the cure of consumption, where the lungs are not completely disorganized, ought not to be looked upon as at all impossible, in reference either to the nature of the disease or of the organ affected. The pulmonary tubercles differ in no respect from those found in scrofulous glands; and we know that the softening of these latter is frequently followed by a complete cure. On the other hand, the destruction of a part of the substance of the lungs is by no means necessarily mortal, since we know that even wounds of these organs are frequently cured, notwithstanding the unfavourable conditions with which they are neces-

* *Researches*, p. 454.

sarily complicated, by the perforation of the walls of the chest, and the admission of air into the pleura."

1713. These cases, with their accompanying observations, deserve the serious consideration of the medical practitioner; for they encourage a hope, in cases of the most desperate character, that by a kind, persevering, and a well-adapted plan of proceeding, we may be rewarded with success. They will tend to banish that indifference towards the suffering many, that the general hopelessness of their situation but too constantly produces; and will prevent that recklessness to whatever the patient may do, either as regards diet, or the perseverance in a well-directed medical course. May not many have fallen victims to this supineness on the part of the medical attendant? May not the too often granted indulgence of a wayward appetite, and the entire neglect of all the Hygiean means, have proved fatal in cases, where the disease was not necessarily mortal? Do they not reconcile us to exertions, that are too often looked upon as ill-bestowed, because they are so seldom successful? Do they not prove, that consumption, so far, is a more curable disease than cancer, hydrophobia, or perhaps even traumatic tetanus? Yet in either of these diseases, who thinks of abandoning the patient, because hitherto cures have rarely, if ever, been effected? But at the same time, let us repeat, that these considerations should not make us hold out with too much facility, a hope that can be but extremely rarely realized.

1714. Were we to rely implicitly upon the bills of mortality, we should be awfully impressed with the ravages of "consumption." But we must not take for granted, that the calculations upon this point are correct; for there are several sources from which errors may arise—1. From every chronic affection with great emaciation, if attended with cough, though there may be no purulent expectoration or hectic fever, being called "consumption." 2. From every protracted case of disease with emaciation attended by hectic fever being classed as consumption, though some other viscera than the lungs may have been the seat of the disease and the cause of death. 3. From every chronic cough being looked upon as "consumption," though the disease may have been chronic pneumony, catarrh, or pleurisy, &c.

1715. With so much room for inaccuracy, it is very presumable that much error prevails upon this subject—thus, we are informed, that the deaths from this disease in England amount to no less than fifty-five thousand; and that in London it causes one-fourth of the deaths. The same observations we have no doubt will apply to every place in which bills of mortality are

kept. Error must ever prevail, where certainty cannot be arrived at, as regards the essential nature of the disease of which a patient may have died—for there is but one method of ascertaining this; namely, by post mortem examinations. Against this test unfortunately, many causes operate, and will, we fear, too long continue to do so.

1716. 1. Prejudice against the practice, arising from superstitious apprehension, or from a horror in having the body of the deceased disturbed. 2. From an indifference to such examinations, and this of the most reprehensible kind, on the part of the practitioner, since he loses by it important information. 3. Incompetency to perform the operation, owing to a defect in elementary studies, thereby being disqualified to judge between a healthy and a diseased structure; or perhaps incapable of naming the deranged part, or of declaring in what the aberrations consist.

1717. From the operation of these causes, there must necessarily result much uncertainty as regards the *essential* nature of the disease of which the patient died; and consequently, the *artificial* character, or the character drawn from symptoms, is very constantly substituted for it. Yet with all the allowances that can be made for error, we are persuaded that a very large proportion of the human race is carried off by this insidious and formidable disease. For all climates are subject to it, though not in an equal degree; thus the more northern and temperate climates are more obnoxious to phthisis, than the hot countries; and position is also supposed to exert an influence, independently of temperature. Thus, “in large cities it is more frequent than in small ones; and more frequent in the latter than in the country.” Laennec is of opinion that it is less frequent in maritime situations, than in the interior of the country. Dr. Forbes does not agree with this respectable authority on this point, and places the experience of Blane, Trotter, Johnson, Burnett, &c. in opposition to it.

1718. From what has been said, it will appear incumbent on us to define what condition of the lungs should be considered as essentially constituting “consumption.” To fix this we shall not have recourse to any but the very modern pathologists, since they alone have ascertained the departures from healthy structure, and agreed upon what should constitute phthisis.

1719. Mr. Bayle says, “the generic character of phthisis may be drawn from the symptoms, or from the nature and seat of the disorder; that is to say, it may be either artificial or essential. But it appears to me indispensable to unite these two characters. The artificial, which is drawn from the symptoms, is not applicable either to all degrees or to all cases of phthisis.

The essential character, which expresses the nature and seat of the disorder, suits it in every degree and every form it can take, but would be insufficient to know it by during life. As it results from my researches, the essential character of phthisis is this:”—

1720. “Every injury of the lungs, which left to itself produces a progressive disorganization of them, and in the end ulceration and death, ought to be called pulmonary phthisis.”

1721. This definition would have been more perfect had not “death” been considered essential to its character; for we have just seen that death does not always follow, even in the best ascertained cases of consumption. Nor is ulceration a constant condition of the parenchyma of the lungs, though death may take place. Broussais* gives a remarkable case of this kind; indeed there was an absence of all the usual symptoms of phthisis except cough; that is, there were neither hectic fever, diarrhœa, night sweats, nor purulent expectoration, though there were tubercles to a very large amount; indeed he says, “they formed three-fourths of the whole bulk of the left lung.” Some of these “equalled a hen’s egg in size, and consisted of dry cheesy matter, which was very easily broken.” Drs. Physick, Otto, and myself, attended a young lady of this city, in the course of the disease which destroyed her, there was not a single symptom that betrayed there was the slightest mischief lurking in the lungs—there was neither cough, difficulty of breathing, hectic fever, nor purulent expectoration, which Pinel makes constitute phthisis; there was marasmus, but it was not excessive. On opening the body, the lungs alone were found diseased. In another instance, Dr. Chapman and myself attended a boy of eight or nine years old, whose disease appeared to be located in the abdomen—in this part, he appeared to suffer excruciating agony, which powerful doses of laudanum would scarcely abate; and this continued to the last moment of his existence.†

1722. On opening the body, none of the abdominal viscera were at all diseased; the lungs alone were the seats of the disorder. They contained very large quantities of the most offensive pus I ever remember to have encountered; yet in this case there was not a solitary symptom to direct attention to the chest. Bayle has therefore said correctly, that the “artificial character of phthisis” is not applicable to all its degrees, or to all cases. And that the “essential” “would not be sufficient to know it by during life.” In fact, we have no pathognomonic symptom of

* Phleg. Chron. Vol. II. p. 194.

† Indeed we may look upon Bayle’s 38th and 39th cases as being cases without the pathognomonic signs of phthisis.

phthisis—the knife alone reveals its existence with absolute certainty.*

Causes of Phthisis.

1723. Laennec says, that “the progress of pathological anatomy has successfully demonstrated that phthisis pulmonalis is owing to the development in the lungs of a particular species of *accidental production*,† to which modern anatomists have restricted the name of *tubercle*.” “This, I think, is the only kind of phthisis which we should admit, unless indeed it were the *phthisis nervosa*, and the chronic catarrh simulating tuberculous phthisis.” p. 271.

Mode of Development.

1724. We are informed by the same authority that tubercles may develop themselves, as insulated bodies, or in interstitial injection or infiltration. The first may show themselves under several forms, to which he has given the names of miliary, crude, granular, and encysted. The second presents three varieties, as the irregular, the gray, and the yellow. But in whatever form the tuberculous product develops itself eventually, it always at first is of a gray, semitransparent appearance, which gradually becomes yellow, opaque, and very dense. When it softens, it acquires a fluidity equal to that of pus; and when expelled from the lungs, it leaves what is commonly called *ulcers of the lungs*, but which Laennec denominates *tuberculous excavations*. The following are the descriptions of these varieties.

1. *The Miliary Tubercles.*

1725. This is the most common form of tubercles in the lungs. They resemble small grains, are of a semitransparent gray colour, and sometimes have a consistency almost equal to cartilage. They differ in size from a millet to a hemp-seed. They are intimately connected with the pulmonary substance; so much so, that they cannot be removed without bringing with them a portion of it. They become united in groupes. Before this takes place, a small

* We might with much safety, include the stethoscope; but as this instrument is so little understood in this country, and employed so rarely, that we hardly dare at this time consider it as a discriminating means, though it is absolutely one of great certainty.

† “Under the term accidental productions, I comprehend every substance foreign to the natural organization of a part, which any aberration in the nutrition may develop in our organs.” p. 271.

yellowish speck appears in the centre of each tubercle, which eventually involves the whole tubercle. After a while, the whole mass is converted into a single homogeneous body of a whitish-yellow colour, and nearly as dense as cartilage—it now constitutes *the yellow crude tubercle*, or simply the *crude tubercle*. When the tubercle preserves its original roundish form, it is thought to originate from a single point or granule.

2. *Granular Tubercles, or Miliary Granulations.*

1726. This variety is said to be rare, and was first described by Bayle; and from its peculiar character was thought by him to be an accidental production. These are nearly of the size of millet seed, and are perfectly round—they differ from other tubercles in being uniform in size, transparent and colourless. Laennec thinks Bayle was mistaken in looking upon these bodies as different from tubercles, and still more in regarding them as accidental cartilages.

3. *Gray Tuberculous Infiltration.*

1727. This infiltration is frequently found around tuberculous excavations. They sometimes exist primitively, without tubercles; this is rare. At other times there are large tuberculous masses in the first stage, without miliary tubercles. These masses are dense, humid, and impermeable to air—upon cutting them they are found nearly as dense as cartilage, and the vesicular structure of the lungs is altogether lost. As these advance to softening, small yellow, opaque specks show themselves; these increase in size, and eventually involve the whole mass, and convert it into yellow tuberculous matter.

4. *Jelly-like Tuberculous Infiltration.*

1728. In the intervals of the miliary tubercles, a small infiltration of matter, rather humid than fluid, is frequently found. It is colourless, or very slightly tinged with blood, and resembles a fine jelly. This acquires consistence, and is eventually converted into the tuberculous matter just described. These masses are produced by infiltration into the pulmonary tissue, while the common round tubercles are foreign bodies, which press aside and separate the substance of the viscus on all sides, rather than penetrate into its parenchyma. These masses may occupy, occasionally, a considerable part of one lobe, without altering in any way its shape.

Progress.

1729. But "in whatever manner the crude tubercles are formed, after a very variable period, they finally become soft and fluid. The process begins in the centre of each mass, and gradually increases, the tuberculous matter becoming daily softer and moister, cheesy, or at least unctuous to the touch, like soft cheese, and finally acquires the visciduity and fluidity of pus. The softening gradually attains the surface, and at last involves the whole mass."*

1730. "In this stage, the tuberculous matter is of two different kinds in appearance—the one resembling thick pus, but without smell, and yellower than the crude tubercle; the other a mixed fluid, one portion of which is very fluid, more or less transparent, and colourless, unless tinged with blood, and the other portion opaque, of a caseous consistence, soft and friable. In this last condition, which is chiefly observable in strumous subjects, the fluid often perfectly resembles whey, having small portions of curd floating in it. When the softening of the tuberculous mass is completed, this finds its way into some of the neighbouring bronchial tubes, and as the opening is smaller than the excavation, both it and the latter remain of necessity fistulous, even after the complete evacuation of the tuberculous matter. It is extremely rare to find only one such excavation in a tuberculous lung. Most commonly the cavity is surrounded by tubercles in different stages of their progress, which as they successively soften, discharge their contents successively into it, and thus gradually form those irregular and continuous excavations so frequently observable, and which sometimes extend from one extremity of the lungs to the other. Bands composed of the natural tissue of the organ, condensed as it were, and charged with the tuberculous degeneration, frequently cross these cavities in a manner something resembling the *columnæ carneæ* of the ventricles." p. 278, ib.

1731. "In proportion as an excavation discharges its contents, its walls become covered with a species of morbid or false membrane, thin, smooth, white, nearly opaque, of a very soft consistence, and almost friable, so that it can be readily scraped off with the scalpel. This membrane is quite perfect, covering the whole internal surface of the cavity. Occasionally this membrane is entirely wanting, and the walls of the cavity are formed directly by the natural tissue of the lungs, which, in this case is commonly condensed, red, and charged with tuberculous mat-

* Laennec, p. 278.

ter in different stages of its development. Bayle thinks that this false membrane secretes the pus expectorated in this disease—an opinion which is founded on the analogy existing between it and that which forms on the surface of blisters and ulcers. It seems certain, however, at least to me, that the greater part of the matter expectorated is the product of the bronchial secretion, augmented as this is by the irritated condition of the lungs. I do not assert that pus is not formed in these tuberculous excavations at all, but I certainly have observed, that when these are lined by the soft membrane described above, they are often entirely empty, and that, when they do contain any puriform matter, this bears by no means so great a resemblance to the sputa, as that does which is contained in the bronchia." p. 280.

5. *Encysted Tubercles.*

1732. These are developed in patches under the false membrane, if the disease has been long stationary; they are of a grayish-white, semitransparent, with a cartilaginous texture, and adhere closely to the pulmonary tissue. These patches increase so as to make a complete lining to the tuberculous excavation, and forms a continuous surface with the bronchial tubes which open into it. Sometimes, though rarely, the semi-cartilaginous membrane is seen before the softening of the tubercles, and seem to be of the same date with them; this is the encysted tubercle of Bayle.

Effects of Tubercles.

1733. Death may take place without any ulcerous excavations, when tubercles, even of a small kind, are very numerous; in this case they have not become sufficiently soft to have their contents discharged into the bronchia, but this is rare. And agreeably to Laennec, it never happens, but when this state of lungs is complicated with some other severe affection. But agreeably to Broussais and Bayle, as stated above, death may take place without this complication; provided perhaps always, that the tubercles are advancing towards their ultimate softening. When tubercles are inert, that is, altogether free from inflammation, they have not been found to incommode the system in the slightest degree; though they may the lungs themselves in a certain way. For tubercles contain nothing acrid, until inflammation has converted them into suppurating bodies; then access of air produces all the terrible consequences of phthisis.

1734. But death may ensue from tubercles, even in an inert

state, if they be very numerous; as they must necessarily diminish the bronchial surface on which very important changes of the blood take place, by respiration. Therefore, all the mischief, which the want of due oxygenation may produce, will happen in this case; among which we may reckon, all that can happen from the want of the just and proper constitution of the blood itself—secretion and nutrition will necessarily be imperfect; and we are all aware how much depends upon the due performance of these important functions. We cannot perhaps estimate the exact degree of importance that may attach to a deficiency of oxygen in the blood; nor are we acquainted precisely, with the chemical changes that may take place in this mass from its diminution; nor to what extent this may influence the laws of living bodies; yet we are sensible of the necessity of its presence, though we cannot exactly appreciate the consequences of its absence unless this be, nearly absolute. We see, however, that debility and emaciation have been the constant attendants on this state of the lungs. In this condition of tubercles, it would be extremely difficult, if not impossible, to determine that they were present in the lungs—for no symptoms discover their existence; an accidental death, that is, death from some other cause, alone has revealed their presence, and led to the present conclusions.

1735. "When there are few tubercles," says Laennec, "we sometimes find them all excavated after death." p. 282. Now, these are the cases that should get well, agreeably to what this author has said; as these excavations are essential to a cure; and perhaps would, were not the recuperative powers of the system too much exhausted to effect restoration—hence, the truth of the remark made above by Laennec, that the efforts of nature to cure this disease, was rather mischievous than otherwise; as the suppurating of the tubercles, necessarily exposes the cavities to the presence of air; hectic fever, the most wasting of all the chronic affections, immediately ensues, and the patients become exhausted before restoration of the parts can be accomplished. He looks upon the semi-cartilaginous productions as an effort of nature to cure the disease.

1736. It is agreed by all the later pathologists, especially by Bayle, Broussais, Laennec, &c. that the development of tubercles is progressive in the greater number of instances; but certainly not in a regular degree—this sometimes taking place very rapidly, and at others very slowly. But whether the progress be rapid or slow, the process almost always ends in their softening, and thus producing purulent expectoration. It is however not uncommon to see tubercles in all their various states, in the same lungs—these are "1, in the state of granulations, either gray

or colourless, and semitransparent; 2, gray, but larger, and yellow, and opaque in the centre; 3, yellow and opaque throughout, but still firm; 4, in the state of gray tuberculous infiltration, gelatinous, or yellow; 5, softened, especially in the centre; 6, in the state of excavations, more or less completely emptied." Laennec, p. 282.*

1737. Laennec says, that tubercles first begin to show themselves almost always in the top of the upper lobes, "*more particularly the right.*" Louis however has been led from his experience to an opposite conclusion; and states that of thirty-eight cases in which the upper lobe was entirely disorganized, twenty-eight of the instances, were on the left side.† Dr. Forbes

* The anatomical character, as well as the variety, and progress of tubercles, as thus laid down, has been contested lately. Thus Andral, (Clin. Med. Tom. III. p. 4,) denies, that the granular appearance described by Bayle, Laennec, and Louis, to be the germs of tubercles. He says this appearance is owing to the collapsing, (*affaissement*,) of the healthy pulmonary vesicles which surround the indurated and inflamed vesicles. That the tubercular matter is not always placed in the centre; for it is met with in various points, as well as at the circumference of the granules; and thus he decides, that they are partially inflamed vesicles, (*pneumonies vésiculaires partielles.*)

He thinks also, that he has established, that the gray gelatinous infiltration has no relation to tubercles. That it presents no anatomical character different from the infiltrations that take place in chronic pneumonia; and that it is a morbid, (*sui generis*,) secretion, and has been found in many other parts of the economy. Cruveilhier disputes with Andral the originality of this suggestion. Bouillaud thinks, that the name of *tubercle* can only properly apply to such bodies in the lungs as have been called tuberculous abscesses, softened tubercles, tuberculous matter, vomica, &c. if such an improper term is to be retained in medical science.

Andral thinks he has satisfactorily proved from many dissections, that the tubercle always begins from a small point of liquid matter; yellow, or absolutely analogous to pus; and that in other portions of the same lung, similar, but larger collections, and of which the periphery was concreted by the influence of absorption on its surface; while the centre was still liquid. He therefore concludes, that tubercles are nothing more than hardened pus. Of this opinion is also Bouillaud. We would only ask, if this pus differs in any respect from the mildest and most healthy pus? If it do, that difference must have been imposed upon it, during its secretion; and consequently the part forming this pus is the diseased part, and not the fluid which it yields. No one would certainly say, that cancer consists of a fetid, sanguineous and acrid pus—or that the whey-like fluid, discharging from a diseased gland, was scrofula; the effect is here, evidently mistaken for the cause. On the whole, as far as we are capable of judging, we do not think that the account of tubercles as laid down by Bayle and Laennec is at all impaired by the suggestions of Andral, and Cruveilhier. Besides, the whole economy of these bodies, show how widely they differ from every other inflammatory production; 1, they acquire a cartilaginous hardness when suppurating; 2, the cavity from which the pus discharges is lined by a peculiar membrane, from the surface of which no pus is secreted after the first portion has discharged itself; 3, and that the cavity never, or but extremely rarely fills up, as the excavations of common abscesses do.

† Recherches, p. 7, 8, 9.

appears doubtful whether his cases were sufficiently numerous, (123,) to unsettle the experience of Laennec. When large tuberculous excavations are found, it is for the most part in these places.

1738. "It is by no means uncommon," says Laennec, "to meet with cavities of this kind, in the situations just named, when the rest of the lungs are quite sound, and do not contain a single tubercle; but in this class of cases, the patient during life, has frequently exhibited no signs of phthisis, or only equivocal ones, and has died of some other disease." p. 282. These are very interesting facts, and should be borne in mind; we have already adverted to this condition of the pulmonary organs, to show how insidious in some instances this disease is. Dr. Forbes supposes, that this was the condition of the lungs of Laennec himself. "There can be no doubt," says Dr. Forbes, "that the disease of which Laennec died was *phthisis pulmonalis*; and it is somewhat curious," he adds, "that he shared the fate of some of his most illustrious predecessors, in falling a victim to a disease, the nature of which he had taken particular pains to illustrate. Lancisi, and Corvisart died of diseased heart; and his own friend, Bayle, sunk, like himself, under the ravages of the disease of which he had been the most successful illustrator, and of the inevitable fatality of which he had been the most strenuous asserter. M. Laennec's case presented all the external symptoms of consumption; and its nature was moreover, fully confirmed by the very art which he had himself discovered. Before he left Paris, Drs. Racamier and Meriadec Laennec discovered *imperfect* but *evident pectoriloquism*, under the left clavicle, and in the supra-spinal fossa of the left side."*

1739. It is not uncommon to find in the same lung evidences of two or three successive crops of tubercles. The oldest of which, generally occupies the top of the lung, and is in a state of excavation, the second, situated around and below these, are yellow, and of no great size; the third are crude miliary tubercles, and are situated lower.†

* Life of Laennec, p. xxi.

† The progressive nature of tubercles would seem to prove, that they are vital and organized bodies, notwithstanding the cavilling of Bouillaud upon this point. Mr. B. has denied, (Journal des Progrès for 1827, Vol. IV. p. 149 et suiv.) to tubercles, either of the properties just named. With a view to prove this, he gives the definition of an organ from Béclard; who says, that "every organized body is formed of particles intermixing and crossing each other, with a tissue forming or resembling areolæ, with particular cavities for fluids." "Whereas, he says all who have described the tubercle, declare it to have a close, homogeneous structure (Bayle) formed of a mass of matter more or less solid; but that its greatest solidity does not exceed that of cheese, and which softens down to the consistence of pus. Certainly, there is nothing here which resembles organized matter." "Moreover, Stark, (the first who studied the

1740. Various parts of the body are subject to tubercles besides the lungs; indeed all the larger glands, and almost every surface or part that is susceptible of active inflammation appears obnoxious to them. Some however are more liable than others; Laennec arranges them as follows—"the bronchial, the mediastinal, the cervical, the mesenteric,* and the other glands throughout the body: the liver—in which they attain a large size, but rarely come to maturation; the prostate; the surface of the peritoneum and pleura; the epididymus, the vasa deferentia, the testicle, spleen, heart, uterus, brain and cerebellum," &c. &c. p. 284.

1741. It seems indeed proved by the pathological investigations of Louis, that it is sufficient, that the lungs possess them, to have them develop themselves in other portions of the body; though this does not appear to have been the opinion of Laennec, who says, "sometimes, but very rarely, the production of tubercles begins in the parts just named; especially in the mucous membrane of the intestines and in the lymphatic glands; and their appearance in the lungs is the result of a secondary formation." p. 285.

1742. But on the other hand, Louis declares he never found tubercles in any other organ, without their existing in the lungs, and this being essential to their development. He thinks himself justified in this opinion, by having observed, with a single exception that the tuberculous matter was always much more advanced in the lungs than in other parts. We think this ren-

subject with attention, and whose description is strikingly true, and who if he had been better known, would have prevented both Bayle and Laennec the laborious investigations they have made upon this subject,) endeavoured in vain to force injection into these little bodies; he could never make it pass beyond the pulmonary tissue that surrounded them. Cruveilhier repeated these experiments with the same results; and therefore did not hesitate to declare, that these bodies were absolutely inorganic. And Andral having never been able to trace any vessels, fibres, laminæ, in a word, organization, has declared a like opinion." p. 163.

Now, we would ask any candid mind, whether it would consent, to either the definition of an "organ," or to the proofs, adduced, that the parts upon which these experiments were made, were devoid of organization? Thus cartilage, has scarcely a single mark laid down in the definition; yet, who doubts of either its vitality, or its organization. Has injection ever been forced into its substance, when in a healthy state; or into that of tendon, or bone; yet, are these parts, decidedly living and as decidedly organized? Has it ever penetrated the medulla of the cylindrical bones? yet this substance is, both vital and organized, though possessing perhaps, even less tenacity or firmness, than the tubercle, which is denied these properties, because it does not possess more solidity than cheese—nay, who will deny the vitality of the blood, or of the male semen, though they are fluids?

* Louis tells us he found the mesenteric glands more frequently affected, (that is, in one-fourth,) than any others. The spleen and kidneys were equally affected; that is in one-sixth of the cases.

ders the matter probable, but by no means makes it certain; as some circumstances connected with the economy of the lungs, or the other viscera may make the development much more rapid, or slow, than in other portions of the body. That there are parts of the body in which the development is much more excessive than in others cannot be doubted; as the cavernous excavations are much larger in the upper portions of the lungs, than in the middle or inferior parts. And Broussais gives us an instance in which "the liver and spleen were tuberculous; in the former, the tubercles were almost miliary, and without pus in the centre; while the spleen appeared to be transformed into a mass of tubercles, several of which were very large, and softened either entirely or in part."*

1743. Besides, it does not appear from dissection, that tubercles will develop themselves in other portions of the body, merely because the lungs are occupied by them; of this kind is Obs. xl. of Broussais. He declares, that the lungs were "sowed with little miliary grains;" but all the abdominal viscera were sound. But we must not omit to state, that he appears to disbelieve in this instance, his own statement; for in a note he exclaims, "doutez, lecteurs, avec moi meme." (p. 23.) He appears to have allowed a subsequent theory to call in question his own facts. But we believe we could bring many facts to prove, that the progress of tubercles towards suppuration in the lungs, is not always in advance of those in other parts of the body. Thus in Obs. xlii. of the same author, we do not find they were more advanced in the mesentery, than they were in the lungs. We do not think therefore, the opinion of Louis, that "it is essential, that tubercles exist in the lungs, to have them developed elsewhere," is well sustained. The predisposition to this development, most probably exists in the whole of the lymphatic system; and therefore any portion of it, under the influence of certain exciting causes may have these bodies developed in it with as much certainty, if not with equal rapidity, as in the lungs.

1744. We therefore have as much reason to believe, that the development of tubercles in other parts of the body may anticipate their development in the lungs, as to believe with Louis, that this operation must commence in the pulmonary tissue. But be the commencement where it may, we can have no hesitation to believe that it will sooner or later involve the whole of the lymphatic system, as there will constantly be a sympathetic influence exerting itself to this effect.

1745. Some of the organic changes are not less remarkable than constant; thus the cellular and adipose membrane is absorb-

ed to a degree perhaps that no other disease occasions. The bones have their diameters diminished, though their length remains unaffected; while the blood-vessels are reduced in capacity, merely from less blood being furnished to them. The chest of phthisical patients is usually narrow, and oftentimes contracted; the latter arises agreeably to Laennec, from 1, the pleurisies to which such patients are extremely subject, both before and during the course of their disease, and which give rise to a contraction of the chest, when they terminate favourably; 2, the attempts which nature makes to cure phthisis. The serous membranes and skin are very pale and free from blood in these cases; while the muscles and heart, are usually of a bright red. Ulcers, which penetrate the intestines sometimes, especially the smaller, near their termination, are not unfrequently found.

1746. Louis says, that ulcers existed in the small intestines and not unfrequently in the large; in the former this happened in five-sixths of the patients he examined. (p. 175.) Laennec observes, that phthisical patients are not very much disposed to sceptical decomposition; since patients in this disease, are much less liable to gangrenous eschars on the back, from long confinement, than in many others, and that their bodies are slow in running into putrefaction.

Of the Cause of Tubercles.

1747. Laennec has very justly observed in his section on the "examination of the question, whether or not tubercles are the consequence of inflammation," that the ancients attributed to it, all the accidental productions of the system with which they were acquainted, and that this opinion prevailed, until Bayle exploded it by facts. It is well known, that Broussais not only adopted this notion, but warmly espouses it at this moment. With a view to settle this question, Laennec has examined the agency of the inflammatory affections of the chest in detail, and his conclusions are altogether adverse to those of the celebrated pathologist just named.* He first treats of—

* "One of the most enlightened pathologists of the age, Dr. Allison of Edinburgh, seems to think that tubercle is one of the products of inflammation; and certainly this variety, (the medullary,) of tubercle, if such it may be fairly considered, would give a strong colouring to the opinion. But then it might be justly asked, if tubercle be the mere product of inflammation, how does it happen that we see the remains of inflammation acute and chronic, without any vestige of that body? At all events therefore, if inflammation be connected with the origin of tubercle, some other condition must concur in the human body, since inflammation simply of itself is not adequate to produce the effect in ordinary cases, even where the texture of the part, and the age of the patient, are the most favourable for its development."—*Armstrong's Morbid Anatomy, &c.* p. 73.

"Acute Peripneumony."

1748. From what he has observed of this disease and its consequences, he declares it to be his opinion, and thinks it would be the opinion also of every unprejudiced practitioner of observation, that "phthisis very rarely shows itself after acute pneumonia." "And that even where this sequence is observed, it is impossible to say whether the pneumonia has given rise to the tubercles, or whether these, acting as irritating bodies, have not excited the pneumonia. On the authority of pathological anatomy, the solution of the question is much more simple; since it is certain that we very rarely find tubercles in the lungs of those who have died of pneumonia, and that the greater number of consumptive subjects exhibit no symptom of this disease during the progress of their fatal malady, nor any trace of it after death." (p. 290.) And were this true, he thinks, that the transition of one disease into the other might be traced, as is done between the inflammatory engorgement, and the pulmonary abscess; but this is far from being the case. (p. 291.)

1749. He confesses that acute pneumonia, and tubercles, occasionally co-exist; but this is rare; when the frequency of both diseases are taken into consideration. And that in nineteen-twentieths of this complication, the tuberculous affection precedes; and we may therefore infer, that the tubercles are the occasional cause of the pneumonia, or that the diseases though existing together, have no etiological relation to each other. (p. 292.) He next considers—

*"Chronic Pneumonia."**

1750. This disease he declares to be rare, and that the physical character of this affection differs much from tubercles. That

* The observations of Laennec upon the influence of inflammatory affections of the chest, in the production of tubercles, are strongly supported by Louis; (*Recherches sur la Phthisie*, p. 522, et suiv.) He informs us, that of eighty phthisical patients, whose previous history he had ascertained, only seven had been affected with peripneumony; of these there were four, who had been perfectly free from any affection of the chest, for several years before the onset of phthisis. He agrees with Laennec, that tubercles select most frequently the upper portion, or lobes, of the lungs for their seat, while peripneumony invades the lower. He also states, that pneumonia rarely affects both lungs, while phthisis almost always does; and adds that the former is most common to men, while the latter is so in females. He applies the same remarks to pleurisy and catarrh—but with this remarkable fact, that in chronic pleurisy, he found as many tubercles in the lung of the sound, as in the lung of the diseased side. Of the eighty patients above specified, twenty-three only had been particularly subject to catarrh; and out of one hundred and forty-nine

in chronic peripneumony the inflammation is confined to the air-cells, which are pressed closely together, without any intervening space, and are of a reddish, greenish, or yellow colour; yet these bear no resemblance to the miliary tubercles.

“*Catarrh,*”

1751. Laennec makes next in order. He thinks that the popular opinion, that consumption is the consequence of a neglected cold, to be entirely without foundation. He admits, that in most instances of phthisis, the first symptoms are catarrhal; but that it is equally true that very large and numerous tubercles are found without any sign of catarrh. Nor can they be the result of former catarrhs, since they are found in those who may never have had catarrh. He agrees, that a pulmonary catarrh may come on in a state of apparently perfect health, and yet be the first evidence of a tuberculous phthisis; but this case however, may have existed a long time in a latent state; since examination detects all the physical signs of tubercles, and sometimes of even tuberculous excavations.

1752. On the other hand, many persons have catarrh repeated several times a year; yet few of them become phthisical. Indeed, some live to an advanced age without becoming phthisical, though they may have had a mucous catarrh for many years. He however does not wish to be understood as believing, that catarrh is a preventive to consumption, though he concludes it is not the cause of it; that no anatomical marks show the transition of the one complaint into the other. The seat of these affections are altogether different—catarrh consists in an inflammation of the mucous membrane of the bronchia, while tubercles are accidental productions, or foreign bodies occupying the substance of the lungs, but are extremely rarely found in the bronchial membrane itself, even when the lungs are completely charged with them. (p. 296.)

“*Pleurisy,*”

1753. Next occupies his attention. In cases of severe pleurisy, “*the inflammatory afflux*” is not propagated to the lung; on the contrary, the copious secretion of serum, which always

cases of catarrh for which he prescribed, only fifty-two happened to women. From these facts it is evident, that a merely inflamed condition of the lungs, is not sufficient to generate or produce tubercles; and at first sight, it might even appear, that it is not even necessary to their development, where a predisposition really exists; but of this, we must not be too certain, until we know more of the physical condition of inflamed parts, than we do at present. (See note, p. 16.)

takes place in this disease, (see Sect. on Pleurisy,) compresses it against the mediastinum, and thus diminishes its stock of fluids. In cases of empyema, of even a year's standing, the lung is constantly found sound, except that it is strongly compressed. From all his observations, he concludes, that pleurisy is frequently the effect of tubercles in the lungs. And "from all that has gone before," he thinks, "we are authorized to conclude, that tubercles are not the product of inflammation of any one of the constituent textures of the lungs."

1754. "On the contrary, a multitude of facts prove, that the development of tubercles is the result of a general condition of the body; that it takes place without previous inflammation; and that, when inflammation coincides with the tuberculous affection, it is most frequently posterior to it in its origin." p. 297. He thinks this is abundantly proved, by the progress that tubercles make in scrofulous glands. 1. They swell in many cases; and remain in this state for a long time, without redness, or even the surrounding parts being so. 2. It is sometimes several years before inflammation occurs in the parts. But when this takes place, the softening of the tuberculous matter is hastened. "Sometimes, however, not only the softening of this matter, but even the perforation of the skin, and the discharge of the pus take place without any distinct mark of inflammation." *Ib.**

* Perhaps there is less difference in fact in the opinion of Laennec and those who have declared inflammation to be the cause of tubercles, (as Sylvius, Wepfer, Tralles, &c.†) and lately, and especially Broussais; and we may add, indeed, Andral, than would appear at first sight. The absence of inflammation in the development of tubercles, as stated by Laennec, is only proved by the non-existence of redness. But it still remains to be proved that redness is a *sine qua non* to inflammation; indeed, we are of opinion, that a condition may exist in a part, and this to a degree that will eventuate in suppuration, without redness accompanying the process in any of its stages. This appears to be proved in phlegmasia dolens; and especially in such cases of it as run on to suppuration; and also in certain cases of milk abscess, as they are called. Of the former, the phlegmasia dolens running on to suppuration, we can only speak from the information of others, (Ferriar's Med. Hist.) in the latter, we can declare its occurrence, in a number of instances. Yet in all these cases, every other phenomenon of inflammation were present, namely, swelling, heat, and pain. Broussais notices this condition of a part, and calls it "irritation;" this it must be acknowledged, is not very precise; and perhaps it conveys no idea of the actual condition of the part so circumstanced. It is only by a consent of the mind, that this state is admitted, as no positive proof can be offered beyond what has just been stated, namely, that swelling, heat, and pain may alone exist in a suppurating part, (without the circumstance of redness to constitute it inflammation by definition,) be considered as such. Now, it is every way probable, that the several phenomena just mentioned are always anterior to the error loci of the red particles of the blood, which, "*definition*" makes essential to the existence of inflammation. Some change certainly must take place in the parts, when tubercles are about to alter their condition—in what

† Young on Consumption.

1755. There is perhaps no belief more universal than that hæmoptysis is the cause of consumption. But neither Laennec, Broussais, nor Louis,* is of this opinion—they all agree in the frequency of its appearance in phthisical patients, and they also concur, that it is often the consequence of tubercles, but that it is never the cause of them; but of this more when we come to treat of this hæmorrhage.

“Of the Depressing Passions as Causes of Phthisis.”

1756. Laennec declares the depressing passions to be highly instrumental in the production of phthisis, especially if they be strong and long-continued. In large cities, he seems to view them as the sole causes. He thinks this is owing to the more frequent relations the inhabitants have with each other, and the greater prevalence of immorality, shutting out many times all consolation.

1757. He relates in proof of the instrumentality of the depressing passions in the production of phthisis, one of the most remarkable, as well as interesting histories, we ever remember to have met with. I shall relate it in his own words, or at least in the words of his successful and accurate translator.

does this change consist? can any one point it out? is there any physiological fact that will explain it? in certain cases, may not the *vis a tergo* be inadequate to the forcing of the red globules into the capillaries to constitute inflammation, by “*definition?*” yet, may not all the other conditions of this morbid state exist, without this contingency? May we not understand the “*irritation*” of Broussais, to consist of that state of inflammation in which the red globules are not forced into the capillaries? If this be admitted, will it not account for the disappointments now and then met with in post mortem examinations, where every symptom declared the presence of inflammation, agreeably to its full “*definition;*” to have been the cause of death? We ask, may we not understand the “*irritation*” of Broussais, to consist in the condition of such parts as do not circulate red blood, as inflammation unattended by the “*error loci*” of red globules? For neither he nor Goupil, the expounder of his doctrines, do not look upon it exactly in this light. They say that irritation commences in the nerves, and from these cords, it is propagated to the capillary vessels of other parts.

On the other hand, we have many facts to prove, that violent inflammation of the substance of the lungs from even mechanical causes have existed for a long time, and have even proceeded to ulceration, without causing the development of tubercles; and Broussais himself furnishes at least one remarkable case of this kind. (See Monroy’s case, Ob. liii. Vol. II. p. 103.)

* Louis informs us, that “for the last three years, he had questioned every patient that came under his care, whether they had ever had a spitting of blood, and he was constantly answered in the negative, except some few who may have received a severe blow on the chest, or women who may have had a sudden suppression of the menses. But with these exceptions he agrees, that this symptom indicates very constantly the presence of tubercles in the lungs.”—*Recherches*, p. 194.

1758. "I had under my own eyes, during a period of ten years, a striking example of the effects of the depressing passions in the producing of phthisis, in the case of a religious association of women, of recent foundation, and which never obtained from the ecclesiastical authorities any other than a provisional toleration on account of the extreme severity of its rules. The diet of these persons was certainly very austere, yet it was by no means beyond what nature could bear. But the ascetic spirit which governed their minds, was such as to give rise to consequences no less serious than surprising. Not only was the attention of these women habitually fixed on the most terrible truths of religion, but it was the constant practice to try them by every kind of contrariety and opposition, in order to bring them as soon as possible to an entire renouncement of their own proper will. The consequences of this discipline were the same in all; after being one or two months in the establishment, the catamenia became suppressed; and in the course of one or two months thereafter, phthisis declared itself! As no vow was taken in this society, I endeavoured to prevail upon the patients to leave the house as soon as the consumptive symptoms began to appear; and almost all those who followed my advice were cured, although some of them exhibited well-marked indications of the disease. During the ten years I was physician to this association, I witnessed its entire renovation two or three different times, owing to the successive loss of all its members, with the exception of a small number, consisting chiefly of the superior, the grate keeper, and the sisters who had charge of the garden, kitchen, and infirmary. It will be observed that these individuals were those who had the most constant distractions from their religious tasks, and that they also went out pretty often into the city, on business connected with the establishment." p. 328.

"Is Phthisis a Contagious Disease?"

1759. There is considerable diversity of opinion upon this subject. We have never in a single instance met with a fact that inclined us to the belief that phthisis is a contagious disease; and we have certainly witnessed many cases, in which it would have propagated itself, had it been capable of this effect. The best writers, and at the same time the closest observers, such as Laennec, Young, Louis, Forbes, &c. are of opinion, that it is not a contagious disease; though Dr. Forbes recommends caution, in making up our minds upon this subject, by saying, "in a practical question, of such high importance as the present, it is certainly the duty of every medical man to act cautiously, and not

unnecessarily expose the friends of his phthisical patients to a risk, which, although he may deem it problematical or even visionary, may not be so in reality.”*

1760. Laennec says, “in France at least, it does not appear to be contagious. We frequently observe among the poorer classes, a numerous family sleeping in the same apartment with a consumptive patient, and a husband occupying to the last, the same bed with his wife, without any communication of the disease. The woollen apparel and the beds of consumptive subjects, which it is the custom in some countries to burn, are not even generally washed, much less destroyed in France, and yet I have never seen the disease communicated by them.” p. 330. He, it is true, seems rather inclined to the belief, that we may produce the matter of tubercle, by the direct application of some of it to an abraded surface, and relates, rather perhaps as a coincidence than as a proof, his own experience upon this subject.

1761. He says, “about twenty years since, while examining some vertebræ containing tubercles, I slightly grazed the forefinger of the left hand, by a stroke of the saw. The scratch was so small that I paid no attention to it; but on the following day it was slightly inflamed, and there gradually formed in it, and almost without pain, a small round tumour, apparently confined to the skin, and which at the end of eight days was of the size of a large cherry-stone. At this time the epidermis cracked, and showed us the small tumour within, which was yellow, firm, and in every respect like a crude yellow tubercle. I cauterized it with the deliquescent hydro-chlorate of antimony, and felt no pain from its operation. At the end of a few minutes, however, after the fluid had penetrated the whole substance of the tumour, I detached it by a gentle pressure. The caustic had softened it, and made it exactly like a soft friable tubercle. The walls of the cavity which had contained this body, were of a pearl-gray colour, slightly semitransparent, and without any redness. I applied the caustic afresh to these; the parts soon healed, and I have since found no further effects from the accident.” p. 331.

1762. We cannot, however, look upon this case as a positive propagation of the tubercle by innoculation, though we do not in the slightest degree question the truth of the statement; for opportunities for their multiplication occur in every phthisical patient, by the passing of the matter of tubercle over the oftentimes denuded bronchia and trachea; yet it is very rare to find tubercles occupying these parts.

* Note to Laennec, p. 330.

"Of Hereditary Predisposition."

1763. There are few facts better established, than predisposition from hereditary transmission, in certain diseases of the human system; among these the consumptive *taint* perhaps stands foremost. We have had frequent opportunities of witnessing the transmission of pulmonary complaints; and in a few instances, even to the extinction of a family. One of this kind, was remarkable for the extent, and the uniformity of the cause of death in a very numerous family. This predisposition arose on the side of the mother; though she lived herself to the age of forty-three; a period much exceeding that of any of her children, with the exception of a son, who died in his forty-fifth year. This lady bore twenty-three children, without being able to suckle any but the two first. The males much exceeded the females in number, in the family; yet there did not appear to be any exemption in their favour in the transmission of the phthysical taint, except, that they attained in general a greater age before they died—some died about puberty, others at man, or womanhood; but all, with the exception just stated, died under thirty. The disease in no instance was very rapid; they generally complained from one to two years before they died. But what was remarkable in the history of this family was, the healthy, nay in some instances, the athletic appearance of the men, until the disease became open and decided. In their growth and stature, they altogether resembled the father; who was not only a remarkably stout man, but lived beyond the eightieth year. The females that passed puberty, (two in number,) were rather stout women; while the mother was both delicate and small.

1764. The history of this family is remarkable in another particular; it lived in the country, was very wealthy, and always accustomed to the various physical means, that is so generally found successful, in either destroying the predisposition, or in lessening its influence; yet in no one instance in this family, was this successful, though the open form of the disease was retarded perhaps in all.* The females died the earliest. But this is

* Dr. Forbes, (note to p. 332,) says, "there can be no doubt of the frequently hereditary character of consumption. I mention this circumstance here, merely with a view of enforcing the vast importance of keeping this in sight in the physical education of the children of consumptive parents. The predisposition cannot be avoided in such cases; but no sufficient reason seems to exist why we may not obviate by proper management their actual development, at least in a certain proportion of cases." Broussais says that tubercles are very often developed by accidental causes; and that this is a frequent occurrence in the army—here, fatigue, exposure, or other circumstances, may cause the appearance of phthisis, even in such as might never have had this to

an extreme case; in general, the tendency to consumption is not so extensive; visiting only certain members of the family, while other portions escape; and this oftentimes without any obvious reason for the selection, or the exemption.

1765. On the other hand, we sometimes find large families of children destroyed by consumption, without our being able to trace it to hereditary predisposition. Laennec mentions an instance he himself knew, "in which the father and mother died upwards of eighty years of age, and of acute diseases, after having seen fourteen children, (born healthy, and without any seeming predisposition to the disease,) successively carried off by consumption, between the ages of fifteen and thirty-five. One other child, who was delicate from birth, and with decided marks of tuberculous predisposition, is however still living, at the age of forty-eight, after having suffered several severe attacks of hæmoptysis, and appeared to be more than once affected with phthisis." p. 332.

1766. He adds, "the ancients, and especially Aretæus, have carefully described this particular temperament or constitution. It is distinguished by the brilliant whiteness of the skin, the bright red of the cheeks, the narrowness of the chest, the projecting or winged configuration of the scapulæ, and the slenderness of the limbs and trunk, which is however combined with a certain degree of adipose and lymphatic stoutness. This particular constitution is attributed by Aretæus rather to hæmoptysical than consumptive subjects; and the remark is worthy of that accurate and clever observer, as there can be no doubt that phthysical subjects possessing this configuration, are more subject to hæmoptysis than others." p. 331.

1767. The period of life at which phthisis makes its appearance, but for this fortuitous exciting cause.—*Phleg. Chron. Vol. II. p. 25.*

To effect the object suggested in Dr. F.'s note, is every way "devoutly to be wished"—but how is it to be accomplished? We regret that this judicious writer, has not offered his views upon this subject; for but one mode suggests itself to our mind; which is, the gradual development of all the physical powers of the body, by a strict observance of every thing that relates, to what is, (absurdly,) called, the non-naturals; but even this should be under the direction of a skilful master. The first perhaps in importance among these, is well-regulated and appropriate exercises—and for this purpose, a properly conducted gymnasium is the best. We are persuaded, we have seen important, as well as permanent benefit derived, from this delightful school of exercises; and we think in one instance, the development of phthisis was prevented.

Dr. Baron observes upon this subject, (*Illustrations of the Enquiry, &c. p. 215.*) "since it appears that whatever enfeebles the frame or deteriorates the constitution, predisposes to the disease in question; how shall we avert this predisposition? The answer is apparent; we must do every thing in our power to invigorate and fortify the frame; to bring all its functions into a healthy state; and by all means to keep them so."

ance, must necessarily be subject to various contingencies; and which will of course, either hasten or retard its development, and consequently unsettle the precise period of its attack. Thus, the general state of the constitution; the liability to the action of exciting causes; and force of these, or the frequency of their application, will contribute to render uncertain, the exact time of life for phthisis to make its appearance. To determine therefore, any tolerable average of period, will require the mean of very many cases—the older writers, and especially Hippocrates, fixed the time between the age of eighteen and thirty-five; and it is generally conceded he was nearly right. While Bayle, who had charge of a hospital in Paris, determines the period to be from the fortieth to the fiftieth year.

1768. But from this disease, as Laennec justly observes, “no age is free.” “The unborn foetus has been found affected with it.” It is extremely common among the children of the common people; it is likewise frequent in old age.

1769. Women are more subject to phthisis than men. Louis says, “des cent vingt-trois cas dont il s’agit, soixante-dix appartiennent aux femmes, et cinquante-sept aux hommes;”* and this opinion is confirmed by almost all the writers upon the subject, and is in strict conformity with our own experience.

“Of the Physical Signs of Tubercles.”

1770. As no attempt had been made to ascertain the existence of tubercles in the lungs, if we except the “percussion” of Avenbrugger, before the discovery of the stethoscope by Laennec; and as he is now looked upon as the highest authority upon this subject, by the profession at large, we shall condense what this sagacious physician has said upon it, nor offer an apology for its introduction, as we are satisfied, that we are performing an *important* service to our readers, and shall trust confidently to their good feelings, for its being an *acceptable* one.

1771. Tubercles, with some rare exceptions, commence in the summit of the lungs. The earliest signs are discoverable below the clavicle. If they are small and detached, they cannot be discovered—at this time the health appears good; at least the cough is so slight, that it is for the most part disregarded.

1772. But when there is an accumulation of *crude or miliary tubercles* in the upper portion of the lung, the sound from the percussion of the clavicles diminish, and is usually unequal; this extends sometimes as low as the fourth rib. Dr. Forbes remarks on this observation, that “in no case is the importance of *per-*

cussion so frequently and strikingly evinced as in the early stages of phthisis. A single blow upon the clavicle will often afford the means of a more certain diagnosis and prognosis than weeks, or even months of observation on the general symptoms." p. 334.

1773. No other parts of the chest will give rise to this phenomenon from the accumulation of tubercles, except the interscapular region, where there may be at the root of the lungs, a great number of them. When this sign exists, and even when absent, a diffused broncophonism is perceived below the clavicle, over the infra-spinal fossa of the scapula, and in the axilla.

Signs of the Softening of Tubercles.

1774. When the tubercles begin to soften, the same signs continue; coughing now gives rise to a kind of guggling, as if the matter were thick. This, however, soon becomes more like the mucous rattle; the *cavernous* cough indicating pulmonary excavation. As this empties itself, the respiration also becomes cavernous; and with the cough, indicates the increasing of the cavity. Broncophonism is succeeded by pectoriloquism. Sometimes as the excavation empties itself, the resonance becomes clearer; this has led to the supposition that the patient was improving, but this is a mistake. At the time the tuberculous matter is softening, percussion produces a guggling, or jar, like that yielded by a cracked pot, with a peculiar resonance, declaring the presence of a cavity. This sign determines, that the excavation is very near the surface of the lung, but is only to be observed in thin subjects. When one of these superficial excavations has its walls thin, soft, and not adhering to the costal pleura, the auricular *puff* frequently accompanies the cavernous respiration and cough, as well as the pectoriloquism. In this case, every word is followed by a puff, like that used in blowing out a candle, and "would be mistaken for a puff in reality, if the sense of touch did not rectify that of hearing."

Signs of the Complete Discharge of the Tuberculous Matter.

1775. When a tuberculous excavation is completely empty, it is indicated by the cavernous respiration and cough. The cavernous rattle is no longer heard; or only temporarily, if secretion be going on; but will disappear for hours after the patient has expectorated. Now, and sometimes before; pectoriloquism becomes perfect. (See par. 1774.)

Symptoms and Progress of Phthisis.

1776. There are few diseases in which so much uncertainty of diagnosis prevails, as in phthisis. We have already remarked how vague the statements are, (par. 1715,) as regards the frequency of this disease, and this owing to the difficulty of determining its existence, by the common, or general symptoms. Too much has always been taken for granted, as regarded the pathological condition of the lungs; and this would still have prevailed, had not so much pains and talent been bestowed lately on this subject, by men, whose zeal and opportunities have enabled them to establish with certainty the morbid changes in these organs, and which it is now agreed, shall be called phthisis. As we have laid it down to be a well-ascertained fact, that tubercles are the cause of this disease; or in other words, have restricted the term phthisis, to the effects of these bodies, it will necessarily follow, as their development is gradual, and oftentimes successive, that the initial symptoms produced by their presence, will be different from the more advanced and final stages of their development; and in this, in great measure, consists the difficulty of deciding on the existence of tubercles, from the symptoms they primarily create.

1777. For as there are so many causes which give rise to cough, expectoration, and pain, independently of tubercles, one cause or condition may readily be taken for another—in either case injury may arise, as indifference or over-anxiety may prevail. With a view to prevent either of these errors, we will state from the best authorities, as well as from our own experience, all that is at present known of the diagnosis of consumption. Laennec, with the intention of lessening the embarrassments upon this subject, has considered phthisis under five different forms or varieties, and as there appears a just foundation for this division, and especially as it comprehends nearly all the symptoms that can occur, or that can distinguish one state of the lungs from another, we shall adopt his mode of treating this difficult subject.

1. Regular Manifest Phthisis.

1778. This frequently begins by a slight dry cough, which may continue with more or less severity, for months, or even years. Other symptoms, however, generally accompany this condition; such as an abundant expectoration of phlegm, uneasiness about the chest, and sometimes an obscure or dull pain,

which we have often seen patients attempt to relieve, by striking pretty hard upon the chest. Should another "disease now carry off the patient, his lungs will be crowded with very small tubercles."*

1779. Sometimes these symptoms attack subjects predisposed to phthisis, and apparently in their best health; and with such as may have a hereditary taint, it always creates uneasiness and distrust; so much so is this the case sometimes, that the patient almost falls a sacrifice to the influence of depressing passions, or has too often recourse to the thousand "specifics for consumption," with the no less certain, but oftentimes more speedy destruction of his health. Spitting of blood, sometimes, is among the very first threatenings of this disease; but this is not constant. Nor does it always prove the presence of tubercles, though its returns may be both frequent and severe.

1780. This symptom, however, is no less suspicious than alarming; and should neither be treated with undeserving neglect, nor with undue attention; for on the one hand, we have known it to take its unrestrained course to a fatal issue; and on the other, we have seen the patient subjected to an unnecessary, injurious, and severe discipline. The latter was particularly so, in our own case, as will be mentioned under the head hæmoptysis. If other symptoms accompany the spitting of blood, which are known also to belong to phthisis, it should be regarded as but too certain a sign that the lungs are infested with tubercles.

1781. Laennec says, "in whatever way the disease commences, a more or less abundant mucous expectoration, and a constant state of feverishness gradually supervene." The latter, agreeably to our own observation, is by no means constant; for we have seen patients remain free from all febrile excitement, until the expectoration had become decidedly purulent; at this time, a feverishness would manifest itself, and would sooner or later, and with more or less intensity, become a regular and confirmed hectic.

1782. We are disposed to agree with Broussais, that a *genuine hectic fever* never occurs, until the tuberculous matter, or genuine pus, becomes exposed to the influence of atmospheric air; and that as soon as this happens in the lungs, it is immediately excited, and continues until death closes the scene, or recovery is about to be established. (par. 1710, case.) This fever is the never-failing attendant upon phthisis, when accompanied by purulent sputa—we say when attended by purulent expectora-

* Laennec, p. 345.

tion, for this does not always take place, though the patient die of the disease.*

1783. This fever is not always regular in its phenomena; but it generally has two periods of exacerbation; namely, one about noon, and the other during some period of the night. It is sometimes accompanied manifestly by a chill; and occasionally observes a regular tertian type; but this for the most part is slight; and never, as far as we have observed, is the system depressed to a state of danger in this fever, as in the intermittent fever, properly so called. But be the chill ever so slight, it is followed nearly constantly by a hot stage, which eventually terminates towards morning in a deluging escape of perspiration. The pulse in this fever presents to the touch peculiarities as regards its frequency, volume, and quickness, that is perhaps never found in any other fever, and it may therefore bear with much propriety the specific name of the "*hectic pulse*."

1784. As regards frequency, it is rarely, or never below 120 strokes in a minute, and oftentimes this is exceeded; its volume is always small or attenuated, and its quickness remarkable and decided. There is another peculiarity belonging to this consuming fever; namely, let its intensity be what it may, it is never, as far as we have seen, attended by the graver symptoms of other fevers. The head moreover is almost sure to be free from pain; and the intellectual faculties exempt from delirium. The respi-

* Louis, (*Recherches sur la phthisie*, p. 402,) however gives a case in which the pulse, towards the close of the disease, became very much accelerated, small, and weak; though there was "neither cough, nor expectoration." The dissection however renders it probable, that a purulent expectoration had existed for a short time before death, though it may have escaped even the vigilance of Louis himself. For a considerable time before death there was a small increase of the natural heat, with a slight acceleration of pulse; and a chilliness took place, both morning and evening. This most probably was owing to the tubercles being about to develop themselves, and though not capable at that moment of producing a genuine *hectic*, yet were sufficient as foreign bodies, to disturb the vascular system to the extent just stated. But as the disease was about to come to a fatal close, "the heat became more or less considerable in the evening, sometimes preceded by chilliness, and always followed by sweats," p. 403.

The dissection is detailed as follows; "the right lung adhered closely to the costal pleura in all its extent; its upper lobes swarmed with gray, semitransparent granulations, more or less opaque in their centre; there were none in the inferior portion. The left lung presented feeble cellular attachments; gray granulations throughout its extent, and a tuberculous excavation of middle size was found at its top; this was lined with a semi-cartilaginous membrane, applied to the healthy parenchyma, or upon the granulations, and itself covered by a buffy exudation." Now we cannot comprehend how a cavernous excavation should exist, but by the discharge of tuberculous matter. And as but one was found, it is possible, that its contents may have been expectorated without its having been observed; and if this be so, it will not interfere with the position just stated in the text.

ration is sometimes as free as in health; the digestive organ preserves its power; while the muscles retain their strength to a certain extent, however extreme the emaciation may be.

1785. Diarrhœa accompanies, and sometimes seems really to alternate with the night sweats; this is occasioned, agreeably to Broussais, Laennec, and others, by a secondary eruption of tubercles in the intestinal tunics. Broussais says it is frequently attended by ulcerations in the intestinal tube; in this Laennec appears to agree; at least he says, it *sometimes* happens without either inflammation or ulceration. This additional evil contributes largely to the waste of the patient's strength; and but too certainly hastens the fatal issue.

1786. In females the catamenia are wont to disappear very soon after hectic manifests itself; and sometimes even before any severe pulmonary symptoms show themselves. When this suppression takes place, it is almost constantly believed to be the cause of the disease; and too often, stimulating and active medicines are exhibited, with the certain effect of aggravating the pulmonary affection.

1787. It were every way desirable that this point should be settled, and well understood by the young practitioner; as in this disease, no error is more common in practice, than the effect being taken for the cause. For it is constantly urged, that the phthisical symptoms when they show themselves, are altogether dependent upon the failure of the catamenia, and that remedies must be addressed to the uterine system, to restore this evacuation. And very frequently, as just observed, this belief is too exclusively acted upon; for we have frequently seen the most mischievous consequences follow the use of emmenagogue medicines. In all cases, therefore, where we have reason to believe that amenorrhœa is symptomatic of tubercles, we should disregard this symptom altogether in our prescriptions.*

1788. To what circumstance is this suppression owing? it cannot be to any sympathy between the lungs and the uterine system; for it does not take place, unless as a mere coincidence, in any of the more violent and acute diseases of the lungs. It cannot be, as is generally supposed, from debility; as this is very often much more excessive, yet this does not take place. Nor can it happen from febrile excitement; as this is oftentimes more exalted, yet no stoppage occurs.

1789. May we not look for the cause, in the formation of tubercles, on the internal face of the uterus, or upon, or in the ovaria? Is not this supposition nearly confirmed by Louis' thirty-second case, p. 401? in this subject menstruation had

* See Treatise on the Diseases of Females, by the author, Art. Amenorrhœa.

ceased for three months previous to death. On examining the uterus, "its cavity, and the superior half of its neck were of a yellowish-white colour, with a dull and unequal surface, which arose from their superficial coat being converted into a very firm tuberculous matter, about a line in thickness. The rest of the uterus was sound." p. 405. Now, Louis supposes, that in this case, the tuberculous development probably did not take place, until about the period of the suppression of the catamenia. p. 140. And he remarks, that he never found tuberculous matter but in the uteri of those who died of phthisis. These pathological facts are highly valuable in a practical point of view, as they prove to us how utterly unavailing must be every means purporting to be for the restoration of the menstrual discharge; and they, consequently, tacitly forbid the attempt. How far this pathological condition may be of general occurrence, remains to be proved; but what little is known, should elicit further observation; for should this be found common, when the catamenia are stopped, it may become a useful point of diagnosis, and might render treatment more availing than at present, because not absolutely hopeless when it does not take place, in affections of the lungs not arising from tubercles; or in chronic bronchitis simulating phthisis, in other respects.

1790. Bayle also relates a case, (Obs. 1st,) in which the catamenia were suddenly suppressed, as was supposed, by a fright; the uterus was found sound though her lungs were tuberculated; but both ovaria "presented hard unequal tumours of a blackish-red colour on the outside, and of a grayish-white within, presenting a granular suppuration; the ulceration was even visible upon a part of the external surface." (p. 138.) In this case, the ovaries were the seat of the tuberculous affection; yet the suppression of the catamenia was sudden and attributed to fright; but the morbid condition of the ovaria will sufficiently account for the interruption of the menses, without calling in the agency of fear; as these bodies are, we believe, the remote cause of this evacuation. It is to be lamented, that neither Laennec nor Bayle, has been as attentive to the condition of the uterine system, as the subject appears to demand; Bayle mentions one case, (as just related,) in which he carried his researches to the uterus, but Laennec gives not even one.

1791. No sooner does hectic fever establish itself, than emaciation takes place rapidly, even to complete marasmus. "The nose becomes sharp and drawn; the cheeks red and prominent; the conjunctiva of the eyes is of a shining white, or with a shade of pearl-blue; the cheeks are hollow; the lips are retracted, and seem moulded into a bitter smile; the neck is oblique, and impeded in its movements, the shoulder blades are projecting and

winged; the ribs become prominent, and the intercostal spaces sink in, particularly upon the upper and fore-parts of the chest.”*
1792. After hectic fever and expectoration have supervened, the disease varies but little in its fatal progress. Laennec says, that hæmoptysis is not common at this period of the disease; but we have certainly seen it occur frequently at this time. Occasionally however, there are but a few streaks of blood in the expectorated matter. Should the stethoscope at this period indicate a complete evacuation of a tuberculous cavity, a great improvement of symptoms sometimes takes place, which leads to the belief, that a solid improvement is about to take place. This false convalescence, as Laennec terms it, may last for days or weeks; or may even extend to months; of which he relates, (p. 318,) a remarkable instance.

1793. In those cases in which the amendment just mentioned takes place, and which lasts for several months, are those in which the secondary eruption does not take place until after the entire softening of the first crop of tubercles. But the cases in which the cure is complete, are those in which no secondary eruption takes place.

1794. The stethoscope alone detects the softening of the tuberculous matter, and its subsequent discharge into the bronchia; the local symptoms rarely affords any assistance. In some cases the patient himself is sensible of the gurgling of the softened tubercle.

1795. “Notwithstanding the efforts which have been made, in all ages, to deduce pathognomonic signs, from the appearance of the expectorated matter in phthisis, it must be confessed that this affords no peculiar characters which are not met with in chronic catarrh. And modern chemistry has thrown no light on the subject. Three different kinds of matter may enter into the composition of the sputa of consumptive subjects, viz.: catarrhal mucus—the matter of tubercles, more or less softened—and, (sometimes,) the pus secreted by tuberculous excavations which are completely empty. Neither chemical analysis, nor the physical characters of these matters, enable us certainly to discriminate one from the other.” “It is extremely rare to meet with well-marked tuberculous matter in the expectoration. When this is completely softened it combines so intimately with the puriform mucus secreted by the bronchia, that it is impossible to distinguish the one from the other. Besides, tuberculous matter can only form a very small proportion of the expectoration when this is considerable. If it amounts to more than a pound daily, considering how slowly the excavations empty

themselves, we cannot believe that the tuberculous matter can amount to more than twenty grains—that is, to a thousandth part of the whole.” “We cannot therefore yield much confidence to the inspection of the sputa in this disease, inasmuch as those which are most characteristic, viz.: the ash-coloured, puriform and vermicular, are frequently met with in chronic catarrh.”*

1796. Dr. Forbes thinks Laennec has not done sufficient justice to the sputa, as a sign of tubercles in the lungs; more especially in the latter stages. He thinks that all the characters of phthisical sputa may be found in chronic catarrh or bronchitis, but that it is extremely rare. As regards ourselves we are willing to confess, that the sputa has rarely afforded us any valuable or certain evidence of the condition of the pulmonary tissue; yet we are free to acknowledge, that our frequent disappointments have rendered us rather careless oftentimes in our examinations. Nor will we positively deny but that a very repeated and close observance of the physical properties of the sputa, may from long habit, lead to a correct estimate of their nature. And as we would not willingly withhold any apparently important circumstance connected with our subject, we will give Dr. Forbes’ condensed but ample history of expectoration in phthisis, derived from various and best accredited sources, and especially from the latest French authorities.

1797. “It may be of some use to the student if I state here in a few words, what appears to me the most usual characters and progressive changes of the expectoration in phthisis. In the earliest stage of the disease, the cough is dry, or attended by a mere watery or slightly viscid, frothy and colourless fluid; this, on the approach of the second stage gradually changes into an opaque, greenish, thicker fluid, intermixed with small lines or fine streaks of a yellow colour. At this period also, the sputa are sometimes intermixed with small specks of a dead-white or slightly yellow colour, varying from the size of a pin’s head to that of a grain of rice, and which have been compared by Bayle to this grain when boiled. These have been noticed by many writers from Hippocrates downwards. After the complete evacuation of the tubercles, the expectoration puts on many forms of purulency; but frequently assumes one particular character, which has always appeared to me to be pathognomonic of phthisis, although the more accurate and extensive observations of modern pathologists, has proved the same to exist occasionally in simple catarrh. The expectoration to which I allude, consists of a series of globular masses, of a whitish-yellow colour, with a ragged, woolly surface, and somewhat like little rolled balls of cot-

* Laennec, pp. 349, 350, 351.

ton or wool. These commonly, but not always sink in water. This kind of expectoration has appeared to me most common in young subjects, of a strongly-marked strumous habit and in whom the disease was hereditary. At other times, in the cases in which these globular masses are observed, and also in those in which they have not appeared, the expectoration puts on the common characters of the pus of an abscess, constituting an uniform, smooth, coherent, or diffuent mass, of a greenish, or rather a grayish hue, with an occasional tinge of red, (from intermixed blood,) and sometimes more or less fetid. This is the '*sputum cinereum et cænosum, argillæ cujusdam liquidioris speciem præse ferens*' of Bennet."*

1798. The symptoms which we have described as accompanying manifest phthisis, cannot be considered, even when united in the same subject, according to Laennec, as certain signs of the existence of tubercles in the lungs, as a simple catarrh may produce the same signs. For he declares he attended a young woman who died with all the symptoms of phthisis, whose lungs were found on dissection to be perfectly sound, and in whom no organic lesion could be found, with the exception of the liver.

1799. Bayle's 48th and 49th cases were of a similar kind. The first of these patients "was subject to frequent colds, which lasted many months together in the winter." "He experienced deep-seated pains in the chest, and his cough was much stronger than ordinary." "The pulse was small, frequent, and rather irregular. At the same time there was heat of the skin, night sweats, slight delirium, frequent cough, and a slight diarrhœa; very abundant expectoration of an opaque, yellowish and greenish-white, quite like purulent matter. Respiration short, frequent, laborious; slight rattling; tongue white in the middle, very red at the edges; thorax sounding well throughout." p. 433.

1800. "The two lungs adhered to the surrounding parts by means of cellular layers; they were both soft and very crepitant, though their tissue appeared a little red when cut into. There was neither tubercle nor hardness in any place. The mucous membrane was rather red, and a little thickened in the trachea; it was still more so in the bronchiæ and the bronchial ramifications; and the redness was the more marked the further one pursued the subdivisions of these ramifications. One saw throughout these bronchial pipes, a matter resembling that the subject had expectorated during life; and it was only after having scraped this matter, that one saw the swelling and redness of the mucous membrane." p. 435.

1801. In the second case, the patient had complained for

* Note to p. 352 of Laennec.

nearly four years of frequent cough and mucous expectoration, at one time puriform, at another transparent and ropy. The cough increased; the sputa were opaque, thick, round, of a yellowish-white, and like pus. The pulse became small, feeble, unequal and intermittent, but not too frequent. After some time he expectorated mucous sputa quite puriform, and had a continued fever. A rattling was perceived in his breathing; nevertheless the chest sounded well on percussion. The rattling lasted two days, the pulse was frequent, the cough strong, mucous sputa very abundant, and like pus; in a few days he died. p. 438, 439.

1802. On opening the body the mucous membrane of the trachea and of the bronchiæ appeared in a sound state. A puriform mucus was every where to be seen in the bronchial tubes. The lungs were soft, crepitating, and perfectly sound; there were some slight adhesions to the pleura; and the cellular layers which formed these adhesions, showed marks of recent inflammation. p. 440.

1803. These cases teach us, Laennec says, to never assert positively, that the disease is phthisis, where none of the physical signs are present, when the chest is examined by percussion and auscultation. In confirmation of this he says, "in the course of last year, I several times met MM. Recamier and Richerand in consultation, on the case of a young lady who seemed already far gone in consumption, but in whom I constantly affirmed the lungs to be sound from the absence of physical signs in this case. The result of the dissection confirmed the correctness of my diagnosis; the disease was schirrus pancreas complicated with a simple catarrh." p. 355. These cases are of great practical value, as they determine that simple catarrh, unattended by an organic lesion of the lungs, may completely simulate phthisis. And again, they teach us that the exploration of the chest should be attended to, before the diagnosis of a pulmonary disease is pronounced, and that the absence of the phthisical physical signs determine the case not to be consumption with great certainty.

2. "*Irregular Manifest Phthisis.*"

1804. By this term Laennec wishes to designate those cases of phthisis, in which the disease seems to begin in some other organ besides the lungs. It is frequently found, that a chronic form of diarrhœa will precede the local and general symptoms of phthisis. In such cases, dissection reveals ulcerations and small miliary tubercles in the intestines, already softened and destroyed. Perforation of the intestines sometimes takes place in these cases, preceded by acute peritonitis and peritoneal tym-

pany; this condition is announced by the general symptoms of peritonitis, except perhaps that the onset is more sudden and the pain more acute. p. 355, et seq.

3. "*Latent Phthisis.*"

1805. This form is rarely latent through its whole course; but it is not uncommon that the characteristic signs do not show themselves until a short time before death, and the disease to have been mistaken for some other affection. But phthisis is never so completely masked as by pulmonary catarrh; as it may have all the prominent symptoms of phthisis, as hæmoptysis, hectic fever, emaciation, and an expectoration so much resembling it, that it is impossible to distinguish it. In the beginning, it may be said that phthisis is generally latent, as it is common to find miliary tubercles in lungs otherwise healthy, and in subjects that had never shown any signs of consumption. p. 358. Louis and Andral also mention this latent form.

4. "*Acute Phthisis.*"

1806. "Under this term are included those cases which, after remaining latent for a longer or shorter period, at length unfold themselves all at once, with acute fever, emaciation, and other symptoms of such severity as to carry off the patient at the end of six weeks, a month, or even a shorter period." p. 359.

1807. A great number of tuberculous masses or separate tubercles are found in these cases; they soften at one and the same time; or a second crop, of great extent, is found advancing. In these cases, the patients sink under the violence of the fever thus suddenly and powerfully excited. Laennec gives a case, which terminated in less than a month. p. 359. Louis, p. 414, also gives one, in which the disease continued thirty-five days, and but twenty-five after the cough showed itself. In this case the lungs were found adherent in some places; the upper lobe contained a considerable number of gray semitransparent granulations, and small tuberculous masses not yet softened, surrounded by a tissue that was slightly engorged. The right lung adhered universally to the pleura, and was completely studded with tuberculous matter, for two inches high and two broad, which contained a kind of canal filled with a thick fluid, the colour of the lees of wine.

5. "*Chronic Phthisis.*"

1808. Under this name we may include those cases which may

last five or six years, or even much longer—marked by periods of increase, during which hectic fever is manifest, and emaciation makes rapid progress; and by remissions of longer or shorter duration, and these sometimes so complete, that fever, cough, and expectoration cease, and the patient recovers his flesh. Cases of this kind, as must appear from what is stated above, are the consequence of successive eruptions of tubercles, usually also few in number. It is in these that the pulmonary cicatrices are most commonly found.” p. 360.

Of the Treatment of Phthisis.

1809. On this subject, what can we say that will encourage the practitioner to perseverance, or tempt the patient to submission? We have taken much pains to collect the opinions of some of the best practical authorities upon this point, and lament we are obliged to declare, that we have gained nothing by our search; for all agree in the incurable nature of the disease; and all lament the paucity and uncertainty of even our palliative means. In declaring phthisis to be an incurable disease, we may at first sight appear chargeable with inconsistency, as we have admitted this in another place, (par. 1703,) to be otherwise—but this is not so in reality. When the question was agitated, “is phthisis a curable disease?” we admitted on the best authorities, that cures took place sometimes, even after the most formidable symptoms had made their appearance; but that these cases were not only rare, but were effected by the efforts of nature alone. We then pointed out by what means this end was accomplished; and we have now to confess, that we cannot by any means in our power imitate the example.

1810. We have had experience abundantly ample, to test the efficacy of almost every plan hitherto proposed for the cure of phthisis; and we lament to say, that the powers of the remedies recommended for its cure, have been we fear solely confined to the hands of the proposers. But we say this with the most perfect good will towards such as have declared their success, and have generously made known their plans; though we have the mortification to say, that so far no one of them has ever succeeded in our hands. And we fear we announce too solemn a truism, when we say that we do not believe, that phthisis properly so called, has ever been cured by art; and perhaps no better evidence can be adduced that this is almost the universal feeling on this subject, than the numerous “infallible remedies” proposed for its cure. For were tubercles under the controul of any one remedy, that remedy would be every way ample for almost

every case that could occur—but how stands the fact? Has any one means in the vast catalogue of remedies, outlived its hour, not to say its author? It would be time ill spent, to even pass in review the various plans purporting to be cures for phthisis.

1811. Aware of the total insufficiency of every remedial agent heretofore proposed, Laennec most judiciously passes the much greater part of them without notice; and on such as he has thought fit to mention, because they were at one time popular, he condemns by a sweeping disbelief of their efficacy. He nevertheless employs his great experience in the best manner he is able, by pointing out the most natural indications, though that experience has not put him in possession of the power to fulfil them.

1812. He says, “that the most rational indication to be fulfilled as soon as we have ascertained the existence of the disease, is to prevent the secondary eruption of tubercles; as in this case, if the primary tubercular masses were not extremely large or numerous, which they very seldom are, a cure would necessarily take place after they are softened and evacuated.” p. 361.

1813. “The second indication should be, to promote the softening and evacuation or absorption of the existing crop of tubercles. Though the first of these indications, like the facts on which it rests is new, nevertheless, all the means which have been thought best calculated to fulfil it have been put in practice from time immemorial; it having always been the common endeavour of physicians to prevent the development of phthisis in subjects threatened with it, either from constitutional predisposition, or from the actual presence of unpleasant symptoms. In the latter class of cases, the mischief is already done, inasmuch as the first symptoms, general and local, and even the physical signs, do not show themselves very often until long after the formation of tubercles.” *Ib.*

1814. The means proposed to prevent the development of tubercles, are first, blood-letting. This remedy has been recommended in several different ways; 1, in small quantity, and frequently repeated; observing to diminish the quantity, in proportion to the frequency; 2, in larger quantity, so as to make a decided impression upon the system. But unfortunately, neither of these plans have succeeded in the object for which they were proposed. It now seems pretty generally admitted, that this remedy should never be employed, except in such cases as bear evidence of inflammation, either general or local. We have certainly seen it afford much relief under such circumstances; but to be of no advantage under any other; for “bleeding can neither prevent the formation of tubercles, nor cure them when form-

ed." When the abstraction of blood becomes necessary from the presence of local inflammation, the more certain relief is obtained by leeches, or cupping over the pained part.

1815. Laennec very properly condemns the more violent means recommended ever since the days of Hippocrates downwards; as the actual or potential cauteries, by saying he never in a single instance effected a cure, though he employed them. Moxa has not proved in his hands more successful than the other escharotics; nor did he insist upon the caustic potass, when his patient was averse to it. Our own experience in local and irritating remedies to the chest, but too certainly confirms that of Laennec; and as we have never derived any permanent advantage from their use in phthisis, we have ceased for many years to employ them; thinking with Laennec that "measures so painful ought not to be had recourse to, unless they are found by experience to hold out a reasonable hope of success."

1816. Blisters, issues, setons, tartarized antimony in plaster, cautery to the verge of the anus, &c. should all be held under the same proscription.

1817. The second indication is, to promote the softening of the tubercles. This has been attempted by a vast variety of remedies, as lime water, sulphurous waters, both internally and externally, muriate of ammonia, carbonates of ammonia, soda, nitrate of potass, hydrochlorate of soda, hydrocyanic acid, iodine, &c. &c. each of which have been lauded and condemned in its turn; so that neither holds at present, the smallest rank as a remedy for phthisis. The iodine, however, seems to deserve further trial, as its influence upon glandular derangements is undoubted; and though we are of opinion, that the analogy between such affections and tubercles is very remote, still, as this substance has been found useful in several other diseases beside bronchocoele, it may be fairly entitled to further trial. Of the other powerful remedy, the hydrocyanic acid, we cannot speak a word in its favour.

1818. Before the pathology of phthisis was ascertained, it was generally supposed, that it consisted chiefly in ulcers in the lungs; and with an expectation that they might be healed by the same means, that were in common use for this purpose on the external surface, the various balsams and aromatics were liberally exhibited—hence arose the praises of the balsams of Tolu, Peru, and Mecca; turpentine, camphor, sulphur dissolved in various volatile oils, all of which are now deservedly laid aside. With the same intention various gases were breathed; and with a similar hope, the vapours of rosin, tar, myrrh, benzoin, petroleum, wax, &c. were inhaled, which, like their predecessors, are now buried "in the tomb of all the Capulets." And when either of

these substances had been found successful, it must have been in simulated phthisis, as chronic catarrh is sometimes wont to do. We shall not notice the host of empirical remedies; as they of course must be put under the same ban as those already proscribed.

1819. Laennec says, "of all the measures hitherto recommended for the cure of phthisis, none has been followed more frequently by a suspension, or complete cessation of the disease, than change of situation." But even this statement must be received with caution, or perhaps with distrust, as a general admission, as but very few phthisical patients can derive advantage from it; since, change of climate, as a remedy in this complaint, requires a peculiar condition of the lungs, that it may be followed with benefit. And while upon this subject, we cannot lament too deeply, the unavailing, nay, in some instances, the unfeeling practice, of sending invalids of this kind from their comfortable homes, and their kind friends, to die in a strange land, bereft of almost every solace that illness and suffering so strongly claim. The removal to a temperate, or warm climate, has for the most part been sadly abused. The probability of advantage, and the chances against it, have not been as carefully weighed, as the high responsibility attached to the advice has merited. The cases in which this change might be useful, have not been discriminated with sufficient care from those in which it would be altogether unavailing, if not mischievous. For these reasons we most gladly avail ourselves of the opinion of Dr. Clark upon this subject, which we extract from a note of Dr. Forbes, in his translation of Laennec, together with the introductory observations of the latter upon the competency of his friend, to give the best possible opinions upon this important subject.

1820. "For the following note I am indebted to my friend Dr. Clark, late of Rome, but now resident of London; whose opportunities of witnessing the influence of climate in consumption, have been, perhaps, unequalled, and whose accuracy of observation, and soundness of judgment, are, at least, equal to his opportunities. I am happy to say, that Dr. Clark is at this time preparing for publication a work on the Effect of Climate on Consumption and other Diseases, which I doubt not will throw great light on the subject now under consideration."—Trans.

1821. "I consider consumption, with your distinguished author, as a disease very generally consequent to a deranged or cachectic state of the system, originating in a series of functional disorders, and often favoured by an hereditary predisposition to tubercles. When adopted for the removal of this state

of the system, and previously to the actual development of tubercles in the lungs, I look upon *change to a milder climate* as a measure of the utmost importance, and likely, when well-timed, and combined with such other treatment as the case may require, to go a great way to the acquirement of this desirable object. If the mischief has advanced a little further, and there are good reasons for believing that tubercles are already formed in the lungs, more especially if a disposition to inflammation of the organs, or to hæmoptysis, has manifested itself; then, change of climate becomes a more doubtful measure; and, unless adopted with judgment, and with some precaution, may accelerate, rather than retard the progress of the disease. In cases of this kind, it will be necessary, previously to undertaking the journey, to remove, or at least to moderate, the more evident or important of the functional derangements, to subdue excitement, and diminish plethora. Much evil has arisen from inattention to these precautions. Medical men in general seem hardly sufficiently aware of the great excitement produced in the system by travelling, and of the necessity, therefore, of removing those morbid complications most likely to suffer aggravation from this. If the disease has made still greater progress, and the cough, expectoration, emaciation, hectic fever, and *the results of auscultation*, leave no doubt of the advanced stage of the tubercles; the mischief to be apprehended from the exposure, the fatigue, the irritation, and excitement of a long journey, is greatly increased; and, under such circumstances, generally speaking, no advantage is to be expected from the change; and very often the fatal termination will be accelerated by it. But should the symptoms just enumerated, from whatever cause, have become much mitigated, and more especially if there is reason to believe, from a careful examination of the chest, that the disease is confined to a small portion of the lungs; then a residence in a milder climate affords the best opportunity of aiding the efforts of nature in the work of reparation; and, by contributing to the reestablishment of the general health, will tend to prevent the further formation of tubercles."

1822. "A change of climate having been decided on, the particular situation to be selected becomes a question. Professor Laennec's decided preference of a maritime residence is not, perhaps, founded on a very extensive experience; certain it is, however, that as well in this country as on the continent, the places chiefly frequented, and which I have had an opportunity of observing, are Hyères in the south of France, Nice in Piedmont, Pisa, Rome and Naples in Italy. Each of these places may have some advantages when compared with others, and when considered in reference to each individual case. The constitution of the patient,

the coexistence of other diseased states with the pulmonary affection, the previous abode and the habits of the patient, &c. &c. must be taken into account in fixing the decision. In almost every case, where the removal to a milder climate can be conveniently effected by sea, this means is much preferable to a journey by land; in some cases, the good effects produced by a voyage are very remarkable."

1823. Notwithstanding the uncertainty that may attend change of climate, it is proper that we should not altogether lose sight of it as a remedy, and especially in cases of phthisis that may have been casually produced, as the experiments of Flourens upon birds, demonstrate an agency in temperature, that is strongly marked, as the following account appears to prove.

"*Action of Cold on the Lungs.*—It is stated in our esteemed cotemporary, the *Journal de Médecine Pratique* for August last, that M. Flourens has made some important experiments relative to the action of cold upon animals. A young bird suddenly exposed to a great and continued cold, is seized with so violent an oppression of the chest, as to become instantly motionless, respires with extreme pain, ceases to eat or drink, and dies in a few hours with acute pneumonia. In this case the lungs on examination appear of a deep red colour, and are gorged with blood.

"If, on the contrary, the cold is increased slowly, and with interruptions, the bird is affected with *chronic pulmonary inflammation*, and in this case its lungs are red and gorged with blood in some places, and in a state of suppuration in others.

"These results led M. F. to think that he had a direct method of investigating one of the most serious diseases with which mankind are afflicted, pulmonary consumption. He wished to ascertain, 1st, whether in certain given cases, cold alone sufficed to produce this disease; 2d, whether in these same cases it was sufficient to avoid the cold in order to escape the disease; 3d, finally, whether this disease commenced by cold could not be cured solely by a moderate temperature.

"With this view, having taken a number of pullets of the same brood, he placed some in a place constantly preserved of a mild temperature: none of them were affected with phthisis pulmonalis. Some of them were exposed to all the variations of the weather; almost all died of phthisis pulmonalis, after having passed through all the degrees of consumption. Finally, others, after having been exposed like the preceding to all the atmospheric variations, and after having shown like them evident signs of phthisis, were placed in a place constantly kept of a mild temperature: most of them recovered their strength, and some months afterwards were completely cured.

"It is important to compare the lungs of the cured pullets with lungs of those which had died of phthisis. In the latter, the lungs, the trachea, and the bronchia were filled with purulent matter, of a deep gray, and of a fœtid odour, sprinkled with an infinite number of black points; the tissue of the lungs was gorged with blood, softened, as if putrified; many of its cells were red and full of pus; others exhibited black points similar to those with which the purulent matter was sprinkled, and in many of these points there was a small, hard, crepitating body, of a white colour, and of an osseous, corneous appearance. In those pullets which were cured, some portions of the lungs exhibited nothing but depressed, closed cells, where traces of black points which they had contained when diseased were still visible.

"From all these experiments, M. F. concludes, 1st, that cold does not act solely upon the organization and life collectively and in mass; 2d, that it acts especially, and by a particular and determined action, upon the respiratory organ; 3d, that it acts upon this organ in two distinct modes—one which produces an *acute inflammation*, and is promptly fatal; the other which produces a *chronic inflammation*, which is *phthisis pulmonalis*; 4th, finally, that a moderate and constant warmth always prevents the attack of phthisis pulmonalis, and that often even after the attack it arrests its progress.

"These experiments as yet only bear upon *accidental* or *acquired* phthisis; the author proposes to extend them to *congenital* or *tubercular* phthisis, to which certain mammifera, the ruminantia and gnawers, are particularly subject. But we see already from these, on the one hand, the assistance we may derive in illuminating human pathology by observations on the diseases of animals, and they show clearly, on the other, that the good effects which have long been observed from mild climates, arise from their producing the cicatrization of the ulcerations and inflammation of the lungs caused by cold climates."*

1824. From all that has been said on the subject of phthisis, it must be evident, that its treatment must be more regulated by the existence of symptoms, than any view to a radical cure. The inconveniences which the phthisical patient experiences vary during the course of the disease; one of the earliest for the most part, and the most pertinacious and distressing, is cough. This sometimes becomes so urgent as to deprive the patient of sleep, especially during the night.

1825. Very many articles have been tried with a view to controul or subdue this distressing symptom; but we believe that all experience at this time decides in favour of opium, in one

form or other. Hemlock, henbane, digitalis, &c. have been severally extolled; but their superiority over opium for cough is not sanctioned by trial. We therefore rely mainly upon this drug for the relief of this harassing symptom. It is generally administered at night with the hope of procuring sleep; and fortunate it is for the patient, when idiosyncrasy does not prevent its employment, for we know of no substitute; for as a general rule it is found, that where opium disagrees, the other narcotics are frequently ineligible.

1826. It is generally best administered in small doses, and these repeated *pro re nata*, at three or four hour's intervals. The denarcotized laudanum is preferable to the common under any circumstance; and it is particularly called for, where the other form disagrees. It is perhaps eight or ten per cent. weaker than the officinal laudanum. We have found in a number of instances, that the morphia will succeed when no other preparation will; it therefore always merits a trial, when opium in other forms disagree. It, or its sulphate, may be given in solution, or in the form of a pill, in doses of a sixth or eighth of a grain; these quantities being about equal to twenty or twenty-five drops of laudanum. If the former form be preferred, it should be so calculated, that a tea-spoonful of the julep should contain that quantity of the morphia; the following is the form we generally employ:—

R.	Morphia	-	-	-	-	gr. iij.
	Pulv. gum Arab.	-	-	-	-	ʒij.
	Aq. cinnam. simp.	-	-	-	-	ʒss.
	Aq. font.	-	-	-	-	ʒijss.
	Sacch. alb.	-	-	-	-	ʒij.
					f. jul.	

A tea-spoonful of this is to be given at bed-time, and repeated in three hours if the cough persist, or is again troublesome. A tea-spoonful of this formula is supposed to hold one drachm of the julep. If pills be the choice of the patient, we prescribe each to contain the quantity mentioned above, taking care to have the morphia well united with some other substance, to insure its regular division, as well as to augment the bulk of the pills; the following is a good form:—

R.	Morphia	-	-	-	-	gr. j.
	Pulv. rhæi	-	-	-	-	gr. viij.
	Conserv. rosar. vel. syr. commun.					q. s.
					M. f. pil. viij.	

One of these to be used as directed for the solution.

1827. Demulcent drinks should be constantly used, with as much freedom as the stomach will bear, or thirst require. The

most common in use is the flaxseed tea, and it is nearly as good perhaps as any. The slippery-elm bark tea, however, generally merits the preference, as it is more acceptable for the most part to the patient. The drinks may be varied as caprice may direct, or disgust require; therefore, gum Arabic water, barley water, rice water, toast water, baum tea, bran tea, &c. may be had recourse to in their turn.

1828. When expectoration is not free, and the patient oppressed, thirty or forty drops of the compound syrup of squills seems to answer better than most other preparations. For its composition, see par. 1489. This can be repeated as occasion may require. Should this quantity sicken the stomach, the quantity must be reduced.

1829. Though we cannot hold out a prospect of eventual recovery, yet are we bound to employ only such means as will be best suited to the immediate condition of the patient; for we are of opinion, that much injury is done, and even life itself abridged, by that recklessness of consequences which the utter despair of recovery produces, by indulging the patient's waywardness of desire for food or medicine. The constantly consuming fever, the exhausting sweats, and the wasting diarrhoea, certainly merit our closest attention, if we mean the patient shall derive all the aid from medical care that it is capable of affording. With this in view, the diet and remedial means, (as far as they can be considered such,) should be carefully selected, and faithfully persisted in; for by moderating the symptoms just named by judicious and varied means, we may support life sufficiently long for nature to effect a cure. See case, par. 1710.

1830. For these purposes, the most bland, but highly nutritious substances, should be employed for food—as sago, tapioca, rice jelly, arrow root, &c. No animal substance should be permitted in any shape or form. Milk, where it agrees, can be taken with these substances; and rennet whey may be almost always freely indulged in.

1831. We know of no remedy for the fever; though when excessive, its violence seems to be abated by small and repeated doses, (twenty drops,) of sweet nitre, (æther. nitros.) in cold water; or by the occasional use of the acetate of soda, and not covering the body too warmly, especially during the night. The deluging sweats are frequently abated by the elixir vitriol, in small and repeated doses; by a free use of lime water, and by the acetate of lead in two or three grain doses slightly guarded with opium four or five times in the twenty-four hours. By moderating the quantity of bed-clothes, and sometimes by the patient being kept awake at the hour they are wont to appear at. The diarrhoea is best restrained by the occasional use of prepared

chalk and laudanum; the acetate of lead has been found occasionally beneficial, as has the free use of the juice of sweet oranges. The diarrhoea, however, is rarely controlled beyond a short period at a time; and it has been supposed to constantly alternate with the night sweats—but this is an error. Post mortem examinations abundantly prove, that the diarrhoea proceeds from a tuberculous and ulcerous state of the mucous membrane of the intestines. (See par. 1746.)

SECT. IX. PERICARDITIS, OR INFLAMMATION OF THE PERICARDIUM.

1832. The pericardium may be either partially, or entirely inflamed. The symptoms to which this inflammation gives rise, are certainly very far from being either so well pronounced, or so peculiar, as to leave no doubt of the part from whence they originate. Thus, the heart itself may be inflamed only, (though this is confessedly very rare,) or the pericardium may at the same time be affected, yet no discoverable difference exists in the symptoms; but fortunately, this obscurity does no injury to our therapeutical views.

1833. The surface of the pericardium in contact with the heart, is the one that becomes inflamed; its redness is however, not great in the acute form; and as this membrane is a serous one, the inflammation resembles that which may attack a serous tissue in any other portion of the body, except perhaps agreeably to Laennec, that the albuminous exudation is in greater proportion in pericarditis than in either pleuritis or peritonitis; being in the two latter, from twenty to twenty-five times as much serum as coagulated lymph; while in the former, they are nearly equal. Serum however, is occasionally found in pretty considerable quantity; Laennec says a pound, and Corvisart has seen as much as four pounds. This serum is generally limpid, of a pale yellow; and does not contain a sufficient number of albuminous coagula, to render it turbid, though now and then, as in pleurisy, it is found bloody.

1834. Laennec states that the effusion is very considerable in the commencement of the disease, but diminishes by absorption quickly as the violence of the disease abates; for when this takes place the quantity of serum and lymph is about equal. In some very violent cases, there is no serum; instead of this, a strongly concreted albumen is found filling the whole pericardiac cavity, uniting the heart and large vessels to the exterior or loose portion of the pericardium. In these cases it is supposed that the effused serum has been quickly absorbed, and the two layers of false membrane, that is, the layer which the heart itself fur-

nishes, and that yielded by the serous surface of the pericardium, became cemented together, though Laennec confesses, that it is not impossible, in some instances, that the more solid exudation may be the only one. When the disease terminates favourably, the “pseudo-membranous exudation, after a certain time, is converted into cellular substance, or rather into laminæ of the same nature as the serous membranes.” These constitute the general appearances of the pericardium and heart under inflammation—besides these, pathologists remark many others, but as they are not constant in their appearance, we shall pass them over.

1835. This disease has been divided into two forms—the *acute* and the *chronic*. In the acute form, the redness is just noticed, is not very great, and even this exists but partially. The character of this inflammation is peculiar, agreeably to Laennec, “it looks as if the surface of the membrane was covered here and there with little specks of blood very close to each other.” In some cases an albuminous exudation covers the whole surface of the heart, pericardium, and large vessels—this false membrane the same author tells us, has given rise to a singular error, having been mistaken for a variolus eruption in subjects dead of the small-pox. This offers a caution to those who are engaged in pathological researches, not to mistake one phenomenon for another.

1836. It would seem, that the serous membrane of the pericardium, has laws somewhat peculiar to itself; or at least, apparently different from those which govern in other parts the same kind of membrane, as the pleura or peritoneum. The consistency of this membranous exudation, is greater in the pericardium, than when it is thrown out in pleurisy, and adheres more firmly to the subjacent parts. And besides, it seems to have a greater self-preserving power, than the pleura and peritoneum, if the causes which produce inflammation in the latter membranes, be identical with those, which excite it, in the former, since nothing is more rare than simple pericarditis; and even when complicated is very much less frequent than pleurisy or peritonitis. There is a morbid appearance of the heart, about the origin and seat of which Corvisart and Laennec disagree; these are white opaque patches of various sizes; they are about the thickness of the nail, and have a pretty firm consistency. Corvisart thinks they are produced without previous inflammation, and are situated beneath the serous covering of the pericardium; while Laennec contends, they are the result of inflammation, as there is no instance he says of an albuminous exudation without inflammation; and that they are situated upon the membrane as he has been able to remove the one from the other.

Chronic Pericarditis.

1837. This form is said to be very much more frequent, than the acute; existing ten times, out of twelve. The inflammation is much more general, and is much more florid; and "the redness is formed by the close approximation of minute points, which look as if applied by a pencil." It commonly occupies the whole internal surface of the serous membrane. This form is rarely accompanied by the "pseudo-membranous exudation; and when it exists, it is thin, soft, friable, and entirely resembling a layer of very thick pus."

1838. Laennec says in this form of pericarditis, "the muscular substance of the heart loses its colour and becomes whitish, as if it had been macerated several days in water. This loss of colour is attended sometimes by a considerable degree of softening, and at other times, the consistence is natural." This loss of colour, most writers think has been occasioned by inflammation—but this is denied by Laennec; "we can never be sure," he says, "of the existence of inflammation in a muscular organ, unless we find pus deposited among its fibres." p. 663.

Signs of Pericarditis.

1839. It is agreed, by all the writers almost upon this disease, that no other presents so much obscurity of symptoms; or perhaps so much uncertainty of its existence; consequently its diagnosis is extremely difficult. This perhaps is owing to its seldom or never being presented to us, in its simple, uncomplicated form; that is, where the inflammation is limited to the serous membrane of the pericardium alone; this being the case, it cannot present its own insulated symptoms, by which we might be enabled to detect its presence.

1840. The following are the signs laid down by Corvisart, when the inflammation of the pericardium predominates over the other affections, which complicate it. "Breathing difficult or confined, high, frequent and interrupted. A pain about the region of the heart; the patient feeling an internal painful heat and anxiety; the hand if applied to this part feels a palpitation and tumult more or less marked. Commonly, there is cough; but it is dry and distressing; the pulse is small, contracted, frequent, and rather rapid; the face expressive of anguish; urine scarce; in a word, the whole train of symptoms which denote extreme irritation of the whole system, syncope, &c."

1841. Laennec cautions against "too implicit confidence in these signs, even when they coexist; for pericarditis may assur-

edly exist without them, and they without pericarditis. The accumulation of blood in the heart, and polypus concretions, the consequence of this, give rise to precisely the same symptoms."* From this it would appear that we have no pathognomonic sign in pericarditis; and that its existence can only be presumed, from symptoms more or less founded in reality. For acute pericarditis is almost always complicated with an inflammation of the pleura and lungs, especially of its contiguous side.

1842. The chronic form of this disease, is much more frequent than the acute, as we observed above; it is also much more extensively complicated; it is almost sure to be united to all the organic affections of the heart, and with even other affections of the pericardium itself, as dropsy, cartilaginous condition, &c.; it is implicated in the various disorders of the pleura, lungs, mediastinum, diaphragm, and stomach, as well as the acute form. The most common complication is that of the heart; nor is this surprising since the same membrane which lines one, covers the other; and when the portion which covers the heart becomes inflamed, it may penetrate and involve the substance of the heart. In this it resembles the pleura and lungs, as we seldom see one much injured, without the other being implicated, though this is not absolutely a necessary consequence.

1843. The acute form, generally attacks adults in robust health and in the vigour of life; while the chronic may take place at any period of life, as it is generally but a consequence of other diseases.

Causes.

1844. The causes of pericarditis, may be all such as are capable of exciting inflammation in any of the similar tissues—as a sanguine temperament; cold; sudden check of perspiration; the

* In affections of the heart, we have lately been led to the opinion, that "polypus concretions should not be looked upon as a diseased condition of this organ, but as a last effort of nature to relieve it from its embarrassments, if not to effect a cure. It has struck us with much force of probability, that these concretions are the result of two conditions of the system in general, and the heart in particular; namely, 1st, where the heart is inflamed; and 2d, where the system is much exhausted of blood. In the first supposition, they appear to be formed for the purpose of moderating the impulse of the influent blood into the ventricle, the pulmonary artery, and the aorta; and thus diminishing its stimulating force upon each of these irritated surfaces. And in the second, they appear to be intended to occupy these cavities, that the heart may be enabled to circulate with more advantage, the diminished quantity of blood; and by which effort, life is longer preserved. We throw out these conjectures for no more than they are worth; but at the same time we indulge a hope, they may awaken attention in those, who may make pathological research an object of attention.

suppression of accustomed evacuations; errors in diet; metastases, especially rheumatism and gout; blows or other violences, &c.

Treatment.

1845. From what has been said, it is evident, that in prescribing for pericarditis we take for granted that the disease exists, rather than feeling an assurance, that it is present—we have however observed, that the acute form of this disease was perhaps complicated by acute inflammation of the parts in the immediate vicinity of the heart, as the pleura, lungs, mediastinum, and diaphragm, and that while this complication rendered the diagnosis of pericarditis extremely obscure, it nevertheless rendered the nature of the treatment more certain, however unsuccessful it might prove. Indeed, from all testimony upon this point it would seem, that nothing but dissection can determine the previous existence of pericarditis; consequently that as it has no marked characters on which we can rely, that we may often prescribe for this disease where it does not exist; while on the contrary, it may have been present when it was not suspected.

1846. But as this disease is rarely, if ever, simple, or uncomplicated; and as, when in combination, it is always connected with affections of high inflammatory character, the mode of treatment must be such, as pleurisy or pneumonia, with which it is so commonly connected, require—such as blood-letting, both general and local, &c. but at the same time always having regard to the nature and type of the disease with which this affection may be associated. In the chronic form we have more *time* to combat the disease, but absolutely perhaps less *chance*, from the changes of structure, &c. the parts have already undergone.

1847. The history of this disease, should teach us a more cautious language than is oftentimes employed, when giving a name to a disease, or when relating our cures; it is not very uncommon to hear a disease called pericarditis; or its cure boasted of, when no certainty could be obtained of the nature of the affection purporting to be an inflammation of the pericardium.

SECT. X.—CARDITIS.

1848. The same obscurity prevails in cases of carditis—this disease furnishes no pathognomonic sign; and perhaps for reasons similar to those we have expressed for pericarditis; namely, that it is seldom or never found simple, or uncomplicated; and when complicated, it is with affections, similar to those enumerated as embarrassing inflammation of the pericardium. The causes are similar to those which cause pleurisy, &c. But, per-

haps the heart is more liable to become affected by metastasis, than the pericardium; hence, it is supposed not unfrequently to become the secondary seat of disease, especially of gout and rheumatism. Practical writers offer no other mode of treatment for this disease, than for pericarditis.*

* Since writing the above, we have met with an account of "the acute idiopathic inflammation of the heart," as extracted from Hecker's Literary Annals of Medicine; the account is given by Dr. Krause. Dr. K. commences his account by the diagnosis of this rare, but terrible disease, as laid down by Dr. Heim, who had witnessed three cases of it. Dr. Krause esteems the diagnostics of Dr. Heim as accurate, valuable, and pathognomonic. He declares the disease "begins with" shivering and trembling of the whole body, and intermittent chill, which latter may continue during twenty-four hours, but is followed by very little or no heat. There is no acute stitch felt, but pains in the heart precede the distinct attack twenty-four hours. Sometimes the disease comes on suddenly. The patient has no cough; if in any instance cough occurs, it is entirely dry, neither mucus nor blood being expectorated. In the commencement the patient has the greatest anguish and the most agonizing pain, not in the chest generally, but immediately in the heart itself. The patient shrieks out, and is not quiet more than a second, repeating with great force the same word three or four times, to express his most distressing sensations. He does not lie still an instant, but tosses himself about in bed like one half distracted, while his arms and head are in continual motion. The patient presses upon the region of the heart, and if pressure be made by a bystander, he impetuously demands that it shall be increased. The countenance is always extremely pale. The chest is elevated, and the head which is in perpetual motion is thrown more backwards. The face and hands are quite cold. Before each necessary bleeding, the pulse throughout is not to be felt. The patient feels every movement of the heart, and even complains of its painful throbbings; yet when the physician applies his hand to the chest, he cannot discover the least irregularity. The stronger the pulse of the heart is, the greater is the pain felt in the organ; it seems to the patient to strike upon a wounded spot. He is nauseated, but does not vomit; the greater his thirst is, so much more does he refuse to drink, even when a glass of water is held to his mouth. He is very loquacious, even when otherwise naturally silent; we might also say physically, what the scriptures assert morally, that "out of the fulness of the heart, the mouth speaketh." Fainting and delirium are not uncommon.

"A copious bleeding is followed by so great an alleviation of anguish and pain, which lasts for several hours, that the patient thinks himself quite cured. But the symptoms suddenly return after the cessation. The anguish and pain is increased by warm applications to the chest, and the patient throws them off. If the treatment be neglected, or improper, the patient dies either in consequence of polypous formations on the internal or external surface of the pericardium, or with adhesions of the heart to this membrane, and effusions of pus or water into the cavity of the pericardium.

"The case related by Dr. Krause, in which he had the assistance of Dr. Heim, manifested the above symptoms in a striking manner. By free and ample bleeding, and the use of digitalis, &c. the patient was quite restored to his usual health in ten or twelve days."—*Amer. Journ. of Med. Scien. Vol. III. p. 435.*

CHAPTER XI.

DISEASES OF THE ABDOMEN.

SECT. I.—PERITONITIS.

1849. It has not been but a short time, that the affections of the peritoneum have been well understood; and it is principally owing to the genius and industry of the lamented Bichat, (though to a certain extent anticipated by Pinel,) that the profession is indebted for their clear exposition. Before his time, it was not known, that the peritoneum could be inflamed, either generally or partially, without involving either of the several viscera over which it passed; or that either of these viscera could have its parenchyma inflamed, without this affection being transmitted to its investing membrane, the peritoneum. Modern pathological researches have, however, settled this point now; and the truth of Bichat's declaration on this subject rests upon so solid a foundation at this moment, as not to be shaken, though Lieutaud and some others pretend, that dissection never shows the peritoneum in a state of inflammation, without the viscera it covers being implicated.

1850. This was certainly the view taken of abdominal inflammation, by all the older nosological writers; and hence, Cullen made peritonitis a genus, which comprehended several species—as one or other of the viscera over which it passed, was thought to be involved. Thus, if the peritoneum of the omentum was inflamed, the inflammation was called by its name; and so on with the other viscera of the abdomen; though Cullen confessed it was difficult to distinguish these phlegmasiæ from each other, by any marks or signs; nor did he consider this a matter of much moment; for if known, they all required to be treated as inflammation in general. Hence, we have gastritis, enteritis, cystitis, hysteritis, &c. &c. proving, that those who made these distinctions, were persuaded, that an inflammation of the peritoneum did not exist, without these viscera participating in it.

1851. It is therefore a matter of great practical value, that this subject should be better comprehended than it is generally; with this in view, we shall give the best tested opinions upon this point, both anatomically and pathologically, that the mode of treating the inflammation of the several tissues composing the

abdominal organs, shall be more easily understood. But to comprehend the various phenomena presented by a diseased organ, requires an acquaintance with the brilliant discoveries of Bordeu and Bichat, of the nature of the more intimate and varied structure, of our bodies.

1852. M. Gasc has observed,* that "the researches of Bichat upon the tissues which enter into the composition of our organs, have led us to believe that an inflammation of the peritoneum may exist, independently of the organs beneath it. And that these organs are composed of several tissues, whose structure and nature are different, and their affections vary, as it may be one or other of these tissues that may be primarily inflamed; for instance, the mucous membrane of the stomach, intestines, the bladder, the uterus, &c. have both acute and chronic catarrhs; for the peritoneum, serous inflammations; for the muscles, a particular inflammation, though we know not at present the mode of these alterations. But it is certainly always true to say, that the stomach, the intestines, the bladder, the uterus, &c. are never attacked by these three affections, at one and the same time; that the inflammation is always confined in the first instance to a single tissue; and when this is acute, it is only the peritoneum that is diseased, the other tissues remaining sound." "And that those who suppose, that this inflammation depended upon the organs over which it passed, was in error, since the inflammation of the peritoneum is never confined to the limits of the organ, but spreads itself indefinitely beyond it." This part then, of pathological anatomy, seems to be so well established at this time, that we take it at all times for granted, as may be seen in treating of the inflammations of the several viscera of the abdomen, especially in the forms peculiar to the female.†

1853. Few tissues of the body are so susceptible of inflammation as the peritoneum; this disposition it seems to derive from its very organization; hence, the variety of causes which may urge it to inflammation. It may be produced from external, as well as from internal causes; mechanical violences, as strong compression, blows, falls, wounds, &c. Chemical irritations, as the injection of stimulating liquids within the cavity of the belly; unabsorbed effusions of blood, pus, serum, bile, &c. The internal may be, pressure from pregnancy, either uterine or extra-uterine, enlargement of the ovaries, &c. Violent and long-continued efforts, which may put the peritoneum upon the stretch, as lifting heavy weights, jumping, carrying heavy loads, &c.

1854. Cold suddenly applied to the body, especially if it be

* Dict. des Sciences Med. Art. Peritonite.

† See Hysteritis and Puerperal Fever. Diseases of Females, by the Author.

in a state of perspiration, or if it be long and partially applied; too cold water in bathing, &c.; sudden and powerful passions or emotions of the mind; the sudden suppression of the lochia or menses, in females, is also said to be capable of producing peritonitis; an epidemic constitution of the air we are told has given rise to this disease; in proof of which several of the French army surgeons or physicians, might be cited; Pujol and Broussais quote instances of this kind; and Gase declares he has seen it more than once in the hospitals of the army, and especially at Dantzick, (loc. cit.) It may, and is perhaps, very often produced by metastasis.

1855. These causes may act suddenly, and excite the acute form of this disease; or they may act more slowly, and produce the chronic; it will therefore be proper to divide this disease into the acute and chronic peritonitis.

Acute Peritonitis,

1856. Is that form of the disease which declares itself suddenly; is preceded by causes more or less evident; where the symptoms are violent, and the progress rapid. It may attack persons of any age, or of either sex, but more frequently the young and plethoric, but especially women after delivery.*

1857. This disease generally invades by a chill, and signs of debility—the chill sometimes is not distinctly marked, and occasionally it is of very long continuance; this is succeeded by heat of various intensities; head-ache, and sense of tightness around the stomach, or epigastric region. So soon as the inflammation is established, the belly becomes painful to the slightest pressure; so much so sometimes, as not to be able to support even the weight of the bed-clothes, or the lightest application. The degree of pain will be in proportion to the extent and intensity of the inflammation. Sometimes it is intensely fixed to a spot of the abdomen, at other times it is vague or more extended. The patient finds most relief, by laying on his back, with his knees drawn up, all other positions being extremely painful. The hypochondria are more or less distended; a tumour, answering to the form of the intestines, may be sometimes observed; the stomach swells, and becomes to a certain degree tympanitic by extricated gases. Hiccough, nausea, vomiting succeed, together with great anxiety; respiration hurried and painful; especially during inspiration. These symptoms are attended sometimes by constipation, at other times by diarrhoea.

1858. The pulse is hard, contracted, and frequent, in the be-

* See Puerperal Fever. Diseases of Females, by the Author.

ginning; and towards the close, when the disease is violent, it becomes so frequent as scarcely to be numbered. The face is pale, and frequently is covered by a cold sweat; and by and by becomes livid and agitated, though the integrity of the mind is rarely disturbed, even to the last. The extremities become cold and clammy; the urine high-coloured and very scanty; sometimes depositing a lateritious sediment.

1859. This disease must ever be considered as one of danger; but the suddenness, and degree of this, will in some measure depend upon the force of the causes, the susceptibility of the parts concerned; the age, the sex, the temperament, and season of the year. In young, vigorous, and plethoric habits, this disease for the most part, is more violent, painful, and rapid, than in people advanced in years, and when the causes act slowly, and moderately, it is slower in its march, nor is it marked by so intense a febrile condition of the system; sometimes it is only observable towards evening, though it may eventually prove mortal.

1860. Peritonitis, properly so called, may however be confounded with inflammations to which the substance of the different viscera of the abdomen is sometimes liable; as with the inflammation of the stomach, the intestines, the spleen, the liver, &c. and from which it is almost impossible to distinguish it; but fortunately a mistake of this kind would not be very serious, perhaps in a practical sense, as the curative indications would be the same.

1861. This disease is sometimes so insidious and apparently so mild, that the inexperienced practitioner may be led into an error in prognostic. As a general rule, where the disease is ascertained, the issue should always be dreaded, though it is not necessarily fatal. Where the constitution is good, the proper remedies early applied, and faithfully pursued, the disease may be overcome; but in feeble constitutions, where important time has been lost, or the case injudiciously treated, it is but too certain to prove fatal.

1862. Peritonitis runs its course with great rapidity in general, especially in females after delivery. For the most part it terminates from the fifth to the tenth day, and rarely exceeding fourteen days. It may, like all other inflammations, terminate by resolution, effusion, by gangrene, or by becoming chronic.

1863. Bichat informs us, that the dissections of persons dying from acute peritonitis, prove that the peritoneum may be inflamed through its whole extent, or in portions, without the organs lying beneath it being affected. In many instances the muscular coat of the stomach and intestines have been found sound, when this membrane itself has been in a state of absolute gan-

grene.* And as a general rule, the traces of inflammation are evident in proportion as the disease may have been more advanced and more intense. Sometimes the vessels are highly injected and red; while at other times, the redness is scarcely perceptible; the blood having escaped by the collateral branches.

1864. Dissections prove the highly phlogosed state of the peritoneum in peritonitis, and thus points out the mode of cure. The first step is to diminish the quantity of blood, by bleeding liberally from the arm, and this to be repeated if the symptoms do not abate. Besides the general bleeding, local bleedings by leeches must be practised, and this as near the seat of pain, when it locates itself, as possible, or when it does not, and the pain and tenderness is general, they may be more diffused over the abdomen—the quantity to be drawn, will always depend upon the activity of the disease, and force of the arterial system; from six to eight ounces may be considered as a common quantity, but must be repeated if the symptoms persevere, and this in quantities adapted to the state of the system.

1865. The bowels should be kept open by castor oil, or weak solutions of the neutral salts, *but not actively purged*. All pressure should be removed from the abdomen; and the most absolute antiphlogistic regimen enjoined, (see par. 214, &c.) the drinks should be gum water, barley water, flaxseed tea, apple water, thin lemonade, &c. The patient should be kept as still as possible, as motion always hurries the circulation, and thus increases the mischief. Some recommend warm fomentations, but we have never witnessed any marked advantage from them, and they are liable to all the objections we have made against their use in puerperal fever. Others have thought much advantage was derived from cold applications to the abdomen, when the system is labouring under high excitement—but of this we can say nothing from our own experience. One rule however should be observed in the temperature of the drinks of the patient; to give them rather less than lukewarm or cold, according to the

* Notwithstanding this declaration, it would appear that the serous membrane of the stomach is less liable to acute inflammation than other portions of the peritoneum, if the observations of Dr. Abercrombie be correct; for he declares, that “in cases of very extensive peritonitis the peritoneal coat of the stomach is *sometimes* affected; but even this is rare, and a case of pure inflammation of the peritoneal coat of the stomach I have never seen, and do not find described by any writer. Dr. Armstrong, in the first fasciculus of his work on the Morbid Anatomy of the Stomach and Bowels, gives a plate representing inflammatory deposition on the peritoneal coat of the stomach; but no account is given of the case from which it was taken, so that it does not appear whether it was an example of pure idiopathic gastritis, or whether the appearance occurred in connexion with extensive peritonitis.”—*Diseases of the Stomach*, p. 13.

degree of excitement or the symptoms. Blisters to the extremities are sometimes useful.*

Chronic Peritonitis.

1866. Should the patient live with an acute peritonitis beyond the fifteenth or twentieth day, and have an abatement of the severe symptoms, the inflammation may assume a chronic, or sub-acute form; hence, the acute is not an unfrequent cause of the latter form of this disease. We must not, however, regard this as the only cause, for it sometimes makes its appearance slowly and silently, in consequence of slight, but long-continued irritation, of either a mechanical, or even a chemical cause. Thus, workmen whose employments require long and steady pressure upon the abdomen, as shoemakers, coopers, tailors, &c. are perhaps more disposed to this condition, than those whose labours require no such exertion of the abdomen. But above all, if the observations of Broussais are correct, and we have every reason to believe they are, soldiers are more liable to chronic peritonitis than any other class of people. This arises, he supposes, from several causes; as exposure to cold and moisture; to their frequent bivouacings; the cold stage of intermittents. Great age; feebleness of constitution; effusions into the cavity of the abdomen; may also be causes.

1867. The attack of this disease is always insidious, and, in some instances, remains for a long time concealed, as its invasion cannot be recognised by any distinctly marked symptom. It is, however, to be suspected, or perhaps detected, if by an examination of the patient, we find he complains of a long-standing tenderness of the abdomen; or of one which can at times be discovered by pretty firm pressure; for it is the character of chronic peritonitis, to be attended by a dull, obtuse pain, and not by an acute sensation. Indeed, we may declare that there is something peculiar in the inflammation of the serous membranes, since it is not always attended by pain; this is remarkably the case with the pleura sometimes, as we have had occasion to remark when treating on pneumonia, as it has proceeded even to suppuration, without the patient complaining of pain.

1868. On this account, we should be upon our guard, after the active stage of the acute form of this disease has passed away, that it leaves not behind a chronic, or concealed inflammation. We must not always rest satisfied with the mere absence of suffering. Sometimes, however, the disease declares itself openly

* For more particular details, see Puerperal Fever. Diseases of Females, by the Author.

by the presence of a fixed pain, resembling the stretching of a very tender part; this is not attended by either heat or throbbing; the seat of the pain is generally in the epigastrium; and is sure almost to be aggravated by jolts, or violent motion of any kind, as coughing, sneezing, &c.

1869. A slight swelling may be observed in the belly, which is a little elastic, and which increases towards evening. The appetite does not fail in general, and the digestion is not deranged. Vomiting sometimes attends; in the former state of things, it is thought that the peritoneum covering the stomach is not implicated in the inflammation; while in the latter, it is believed that it suffers. Broussais speaks of a feeling in the belly which resembles a ball turning round; and which has a tendency to ascend to the throat; for which he accounts, by supposing it is formed by a portion of the intestines, and the engorged mesenteric glands becoming agglutinated.

1870. One of the most remarkable facts connected with this disease, is the natural beat of the pulse in the morning; but there is a small increase in frequency towards evening; at which time a slight augmentation of heat may be observed, and the cheeks to redden; the breathing is a little difficult, and cough upon lying down, giving rise to a suspicion, that there may be already some effusion in the abdomen. This suspicion will almost amount to certainty, if there be joined to these symptoms oedema, and a sparing secretion of urine. Constipation sometimes accompanies this complaint; and diarrhoea is pretty sure to supervene towards the fatal close of it. Slow as this disease is in its march, it is, nevertheless, when it has arrived to the condition just stated, sure to prove fatal.

1871. But what can we say encouraging of the treatment of this disease? we fear nothing—if the inflammation has absolutely ceased to possess an acute form. Yet it would appear wrong to abandon the patient altogether to the efforts of nature; first, because, however hopeless apparently the case may appear, it is not perhaps absolutely beyond the possibility of recovery; second, because, patients do sometimes recover under the most forlorn circumstances, by the persevering use of judiciously adopted measures. Therefore, we should exert our energies in favour of the sufferer, however desperate the case may appear.

1872. We well recollect a case, in which there was nothing to hope, yet this patient recovered; and we attributed the recovery to the free use of the spirit of turpentine. In this we may have been mistaken—it might have been, and perhaps was, mere coincidence; yet the patient appeared to mend immediately after its exhibition by the mouth, and its liberal external application.

Pain was quickly diminished; the diarrhoea soon abated; effusion was arrested; and the patient recovered.

1873. In cases of this kind, therefore, we would recommend the trial of this substance in forty drop doses every two hours, gradually increasing it if the stomach become reconciled to it. At the same time the abdomen should be bathed with it morning and evening, until it irritate the skin sufficiently; and when this subsides, to renew it by fresh applications of the turpentine. Blisters to the thighs perhaps may be useful at the same time. Should these fail, we know nothing beside to recommend.

SECT. II.—ICTERUS, OR JAUNDICE.

1874. Jaundice may be defined, that affection, in which the white portions of the eyes are suffused with yellow; in which the urine is of a dark saffron hue, and the alvine excretions are whitish or clay-coloured. There is scarcely any other disease in the whole range of medical nomenclature, that has received so many gratuitous titles as the disease in question—owing, principally to the hypothetical views of its cause; but we shall not name them, as we shall confine ourselves to the two, at the head of the chapter.

1875. This disease was known to Hippocrates, and to all the writers since his period; but we are indebted to the moderns, for a satisfactory history of this oftentimes persevering, and sometimes unconquerable, disease.

1876. It has been classed variously by different nosologists, and by practical writers—thus Sauvage, Sagar, Linnæus, Vogel, Cullen, Macbride, Darwin, &c. place it among the cachexia; but no two of these agree as regards the Order, in which it should stand; however we shall not stop to inquire into the propriety of either of the situations it is placed in by these respective authors, as its causes, and the condition of the system when it takes place, are sufficiently varied, to prevent any regular position in nosological arrangement. Indeed by some, as Pinel, the disease is considered in the adult, as always symptomatic; in this he is sustained by many others, since he wrote his "*Nosographie Philosophique*." While the author of the article in "*Dict. des Sciences Med.*" on this subject, makes it both symptomatic and idiopathic, and we believe with entire propriety. He therefore proposes to distinguish these species by affixing the term *icterus*, to the idiopathic, and *jaundice*, to the symptomatic. But we are of opinion, there is no very great benefit to be derived from these distinctions, in a practical point of view, as it will not be found an easy matter at the bed-side, to determine the absolute nature of the disease.

Causes.

1877. It is admitted by every authority, that this disease may be produced by a great variety of causes; as a plethoric, or an engorged state of the liver itself; by an inflammation of it, either acute or chronic; by an abscess formed within it; chronic, or organic affections of it; by a compression exerted upon the biliary ducts from pregnancy; over-distention of the stomach and bowels; organic derangements in the organs in the vicinity of the liver; from repelled eruptions, or metastasis; from biliary calculi; from wounds, &c. &c.

1878. Early life, or extreme age, are less disposed to jaundice, than the period comprehended between the age of twenty-five and sixty. Agreeably to our own observations, females are more obnoxious than males, to this disease. Saunders is also of this opinion; especially among such as are of sedentary habits. Some declare a belief in the bilious temperament, as especially obnoxious to jaundice; but this is by no means proved, as we have just stated, that females are more liable to it than males; and the female constitutional character partakes more of the sanguine and lymphatic, than the bilious temperament.

1879. Transient errors in diet, have been said to cause jaundice—this may have happened; but we are of opinion, these are rare causes of this complaint. And even the exposure for a long time to atmospherical vicissitudes, or to long-continued heat, rarely if ever occasion the idiopathic jaundice. Excesses in eating and drinking if long continued, may produce this disease; especially if ardent liquors be freely indulged in. But when jaundice follows the causes enumerated, it is owing to the liver itself being in a morbid condition; and thus it becomes a symptomatic affection. We have never ourselves met with a case of jaundice from the suppression of any evacuation, either natural or accidental; though authors relate instances to this effect. We have however witnessed two instances of temporary jaundice, from strong passion or emotion of the mind.* Hoffman relates a case where jaundice followed every excess in coition.

1880. But the most frequent causes of this complaint, reside either in the liver itself, its appurtenances, or in their immediate vicinity—as a plethoric, or inflammatory condition of this organ—some obstruction in its ducts, from inflammation, from calculi, or viscid secretions; tumours in the duodenum, stomach,

* In the "Dublin Hospital Reports," Vol. III. Art. 6th, is an account by Dr. Marsh, of a young woman, in the Lock Hospital, who was suddenly informed of the death of an uncle who alone of her relatives had been kind to her, becoming universally jaundiced.

pylorus, pancreas, &c. Scirrhus, ulcers, dropsy, and hydatids, of the liver, have all been accused, and perhaps justly, in producing jaundice.

1881. There is scarcely less diversity of opinion among authors, as regards the condition of the circulating fluids, than in the assigned causes of this disease. One supposes, that the constitution of the blood is changed; and that the yellowness which characterizes this disease, is not owing to the presence of absorbed bile. Galen was of opinion, that the bile existed formally in the blood; and that a secretion by the liver, was not necessary to its formation. Stoll and some others were of opinion, that the condition of the cellular membrane has been so modified as to secrete a yellow matter, analogous to bile; and thus tinge all the organs of the body. We do not think however, when this condition of the cellular membrane takes place so as to give rise to this change of colour of the skin, &c. that the colouring material is bile, or any way analogous to bile, save in colour; for this coloration takes place in yellow fever; and this, when neither the secretion of urine, or sweat, or of tears, partake of this change. The same phenomenon and most probably from a similar cause, takes place from the bites of certain poisonous animals; and we have lately seen in a child of four weeks old, an intense yellowness spread itself through the whole visible extent of the cellular membrane in the course of a few hours, where there did not exist any other evidence of jaundice—for the stools were natural, and the urine *pale*. This affection went off in the course of eight or ten days, without the employment of any remedy save a very weak solution of soda; or by any discharge, either by the skin, bowels, or kidneys, that could be looked upon as critical.

1882. It is proper then to distinguish between the yellow colour which is occasioned by the colouring matter of the bile being absorbed from the liver itself, or from the gall-bladder, or by its extrication from the mass of blood, by some unknown agency, and that yellowness, which accompanies yellow fever, the bites of certain reptiles; or as it takes place sometimes from causes which elude our investigations in young children, as just stated. The urine, the sweat, the tears, and the alvine discharges, are always to be appealed to, to settle these differences—should all the first named secretions be free from the saffron tint, and the excretion last named be found to possess its natural hue, we should not call the affection jaundice. But on the other hand, should the secretions just named be coloured, and the stools be free from it, or clay-coloured, we may with certainty pronounce the disease to be jaundice, either idiopathic, or symptomatic.

1883. That there is much cavil as to the constituent parts of

the urine of jaundiced patients, we admit; and that the analyses of this fluid, have given different results in the experiments of several very able chemists who have undertaken them, we have no doubt. Yet we are of opinion, that as bile has been detected occasionally in the urine of icteric patients; and that it is present in most instances, though the chemist is not able at all times, to detect it, we have a right to insist upon its being the cause of colour throughout the system, and of all its fluids. Orfila in his researches upon this subject, concludes, that the urine of icterics contains bile; though it is impossible in some cases he says to detect it. Fourcroy and Vauquelin are of the same opinion; while Thénard absolutely denies it—he says, the proofs offered in favour of the presence of bile in the blood, takes too much for granted to be admitted. But do not the well-conducted and ingenious experiments of Tiedemann and Gmelin, render it more than probable, nay certain, that the bile enters the circulation, whenever the common duct is obstructed? for they found on the third day after a ligature had been passed around the ductus choledocus, the eyes of the animal became yellow, and the urine highly tinged; and in which, they detected by chemical tests, bile—it is therefore in vain to deny its presence in the circulation, under certain circumstances. For the trite objection, that bile is too acrid a substance to be taken up by the absorbents, is not of the slightest value; since Desyeux, Clarion, Orfila, &c. &c. have absolutely detected it in the urine of jaundiced patients. Nor do the instances of fatal jaundice, in which there was found no organic lesion of the liver, or ducts, prove that an obstruction in the common duct is not necessary to the formation of this disease, by giving opportunity for the absorption of bile; since it is generally agreed, that the biliary ducts are liable to spasm, and may thus, under this state, become a cause of jaundice;—of this kind is, most probably the jaundice which follows an hysterical paroxysm, and passion and emotions of the mind.

1884. But why should the absorption of bile into the blood be so stoutly denied upon the mere faith of certain chemical experiments, that failed to detect it; or even more frivolous reasons, when it has been absolutely found by other experimenters? especially, as we have strong analogies from the habits, if we may so term them, of other portions of the body. Are not other secreted fluids made to reenter the system by means of the absorbents? Has not the urinous smell been detected in the breath, and perspiration, of those who laboured under a retention of this fluid? Has not the milk from the breasts been frequently absorbed, when it has been suffered to remain stagnant in the lactiferous vessels? Has not the semen in very continent men been absorbed, and its odour detected in the perspiration? Has not

pus from even pretty large abscesses been taken into the system? Then where is the difficulty in believing the same to happen from the biliary vessels, the gall-bladder, or even from the ducts, when the latter have been obstructed? At all events, we are every way certain, that the *colouring matter* of the bile is constantly absorbed in jaundice, if it be denied on the faith of chemical experiments, that the other portions of this fluid do not enter the circulating mass; and that we are forced to the belief, that the principal phenomena of this disease, if not its very seat, arise from the liver. Or in other words, we believe, that for the existence of jaundice, it is essential that the liver be in an abnormal state.

Symptoms.

1885. It very often happens, that jaundice is not preceded by any very marked precursive phenomena, that are independent of some local affection that may give rise to such symptoms. It is occasionally, however, ushered in by feeble pyrexia; a sense of heaviness or weight about the precordia, and some dyspeptic sensations. But at other times, it is found to follow the determining cause very quickly. This especially happens, when a moral cause is capable of producing it; as after violent passions, or emotions of the mind; after hysteria; after the bite of certain animals if this be admitted as genuine jaundice; or where the common duct becomes obstructed by a gall-stone. In children, it is almost always induced suddenly; as for the most part, children in the month, are more obnoxious to jaundice, than in more advanced childhood.

1886. The eyes for the most part, and especially their internal angles, first becomes tinged; and then in succession, the whole of the white portions, and this sometimes before the urine betrays any evidence of absorbed bile. From the eyes, it gradually spreads itself upon the temples, forehead, eyelids, lips, nose; in a word, the whole face becomes tinged, first with a pale, and soon after a deep yellow. Certain portions of the face, however, are longer free from the colouring matter than others—as the extremity of the nose, the chin, and the cheeks. The lips become dark, sometimes even to lividity. The neck and forepart of the

* In the year of 1792, we witnessed the entire absorption of the *pus* from a very large mammary abscess, which we were about to pierce; but upon examining our pocket-case, we could not find a lancet, and in consequence deferred the puncture until the next day. But upon visiting our patient, we found the tumour so much diminished, that we were instantly inspired with a hope, that the whole of the *pus* would be absorbed—this accordingly happened in the course of a very few days.

thorax eminently partake of the yellow tinge, while certain other portions retain nearly, if not entirely, their natural tone.

1887. The skin is oftentimes dry, hard, and warm. The natural functions of this covering, are altogether suspended, or but very moderately exercised. At other times, it pours out sweat in abundance; and this highly tinged with the icteric colouring, especially in such parts as are more warmly protected, as in the armpits, groins, &c. The patient is sometimes incommoded by an extensive itching, which requires severe scratching to relieve, especially during the night; and occasionally, the skin desquamates.

1888. Upon the first appearance of the disease, the urine partakes of the general yellowness; it however assumes different tones of yellow, from the light saffron to the dark beer colour. It deposits either a lateritious, or a wine lees, sediment.

1889. The alvine excretions, as above stated, are grayish or clay-coloured—the bowels slow, and render their contents tardily, and in small quantities; but this is not uniformly so, as I have upon several occasions seen the bowels moved even to a brisk diarrhœa; and upon three occasions, the quantity rendered was enormous; and so light as to float upon the surface of the urine or other watery discharges. In these cases the odour was powerful, and peculiarly disagreeable.

1890. The head also suffers in this disease—sometimes violently pained, at intervals; at other times the pain dull, persevering, and harassing—the temper becomes soured; and the patient, under the gravest forms of this disease, is even sad, and melancholy. The tongue is furred; and the mouth and teeth become encrusted with a yellow covering, which it is difficult to remove. The taste becomes impaired in its discriminating powers; for every thing to it is bitter; and this even when it is not exercised upon food. Thirst, with a desire for subacid drinks, is sometimes importunate—the appetite is irregular and wayward—at one moment disgusted with every thing, at others voraciously craving.

1891. The stomach for the most part is flatulent, which gives rise to disagreeable eructations—in one patient, they could be smelt at a considerable distance. Sometimes vomiting ensues, and nausea is very frequently present. A pain is sometimes felt in the direction of the ductus choledocus, and extending itself to the epigastrium. A pain is also felt in the hepatic region, which is sometimes tumid and tender to the touch. Colic is not unfrequent; but is especially severe, when the common duct is obstructed by a gall-stone. The respiration is but little affected in the milder forms of this disease; but when a tendency to effusion shows itself, it becomes short, oppressed, and hurried; especially upon going up stairs, or making any other exertion.

1892. The pulse is rarely much affected during the mild stage of jaundice—for the most part, it is *slower than natural*; with more than ordinary tenuity and hardness; and does not become much quickened, unless local inflammation accompany the disease; when this happens, the ordinary phenomena of pyrexia show themselves.

1893. The patient gradually becomes weaker as the disease progresses, and manifests a very decided aversion to exercise or motion. And according to Portal, the arms, but especially the right, becomes numbed. Hæmorrhoids frequently establish themselves during this disease; and sometimes they are regarded critical; as is also bleedings from the nose. Monro, however, says this is sometimes a fatal symptom. It proved so in a very few hours, in the only case we have witnessed. It was an elderly lady, who had laboured under jaundice for some months, and while walking across the floor, was seized with epistaxis. The blood flowed in such a torrent as to defy opposition, and the patient died exsanguined, in a very few hours.

1894. Like every other disease, jaundice may terminate, in health, in other diseases, or in death. It may be complicated, with dropsy, or other affections; and this mostly of the scirrhus kind, of almost any of the abdominal viscera—but most frequently of the liver—hence, it may be associated with melana.

Diagnosis.

1895. The characters, or phenomena of jaundice as laid down above, are so truly characteristic, that we need only refer to what was said in par. 1874, to be in possession of every thing that distinguishes it. We have denied that the yellowness of “yellow fever” proceeds from the colouring matter of bile; for it did not tinge the whites of the eyes, as in jaundice; nor is yellow fever attended by the clay-coloured stools, nor always with the deep-toned, or beer-coloured urine, of icterics—besides, jaundice is not generally accompanied by pyrexia. It is true, when jaundice is decidedly symptomatic, which as we have already observed is frequently the case, the fever which may complicate it, is sure to belong to the idiopathic affection.

Prognosis.

1896. As a general rule the prognosis of the idiopathic jaundice is more favourable than that of the symptomatic; for in the latter there are always two diseases to contend against—but in both it will vary, from age, sex, idiosyncrasy, and general strength of constitution. The nature of the remote cause should also be

taken into consideration; for if this be a manageable disease, the sympathetic affection will yield the more readily—hence, the jaundice of pregnant women will disappear after delivery, &c. so that, from spasm of the duct, or glutinous obstructions of the extremity of the duct, or a preternatural viscosity of the bile itself. As regards age, we almost constantly find the disease is less obstinate, *cæteris paribus*, in young people. Indeed some have looked upon jaundice as always fatal in old people, and especially in old women. In such as are disposed to large secretions of bile, or have, from peculiarity of constitution, a tendency to biliary concretions, the disease is constantly found to be of more difficult management. Though in some instances of this disease caused by biliary concretions, the icteric symptoms have suddenly disappeared, though attended by severe suffering previously. In these cases it is presumable, the gall-stones were but of moderate size, or that the duct suffered itself to be dilated, without long or very intense pain. Instances have occurred, in which gall-stones have passed of a size much larger than we would have supposed the duct capable of transmitting—in one instance, we saw seven pass of the size of tamarind stones—a size much larger than is generally believed can pass. Dr. Gregory, however, goes much beyond this—he tells us he saw one transmitted, that weighed six drachms. It is generally fatal to hard drinkers; as in such, the liver becomes highly diseased, or torpid.

1897. In the absence of any general disturbance in the vital functions, jaundice may be looked upon as a manageable complaint, provided it does not supervene on an acute or chronic disease, in which the strength has been much exhausted. If the stools assume a bilious appearance, the urine become paler and less loaded, and the skin soft, we have reason to hope the disease is abating. In proportion, however, as this disease may be complicated with any other unmanageable disease, will be the uncertainty of its cure—as with dropsy, scirrhus liver, &c. So also, when the perspiration tinges the linen of the patient.

Appearances on Dissection.

1898. There is some difficulty upon opening the body of a jaundice patient, to determine what changes absolutely belongs to this disease, or the disease with which it may be complicated. It is for this reason, that Portal has said, that in making these examinations, it is highly important to determine between the person dying *with* a jaundice, and the person dying *of* the jaundice, that we do not incur the risk of false induction. Persons dying of jaundice, have almost every portion of the body, but

especially the cellular and adipose membranes, of the same general tone of colour, but rather less deep than the skin presented before death; and will of course vary in intensity, in different individuals. The limbs of the icteric corpse is less rigid, or rather very flexible agreeably to Portal. There is generally a tendency to anasarca, especially in the face, hands, and feet; at other times the body is found extremely emaciated. There is a yellow serum sure to follow the incision, when there is an anasarca tendency; the same colouring may be found in all the serous cavities. And Portal says it has been observed sometimes in the aqueous humour of the eye.

1899. The liver is more frequently found changed, than any other organ of the body. The gall-bladder is variously affected, both in its structure, and in the quantity and appearance of its contents. We once saw it thickened, to at least twenty times its ordinary state; and filled with very many calculi of different sizes; sometimes it has been found empty; at others enormously distended. Van Swieten relates a case in which there was more than a pound of bile in the gall-bladder. Sometimes this viscus has been found inflamed, thickened, hardened, or covered with fungous elevations.

1900. The ducts of the liver, both the cystic, and cholidic have been found obliterated; or obstructed with concretions of various sizes, or so contracted, as to refuse the entrance of the smallest probe; and Stoll found the choledocus, in a state of cartilage; besides very many other pathological conditions, that would be both tedious and useless to mention. The curious may consult upon this point Morgagni, or the more recent work of Portal. We may however here notice two curious statements; first, that jaundice has been absent, in cases, where the ductus choledocus has been entirely obliterated; and second, that jaundice has been present, when no obstruction had been offered to the flow of the bile—the latter we have endeavoured to account for par. 1883, but the former if true, is altogether inexplicable at present.

Treatment.

1901. We have endeavoured to show, that the causes of jaundice, are both numerous and obscure; and consequently, the mode of treatment must always be uncertain, if not very often empirical; it becomes therefore a desideratum of moment, to ascertain the determining cause of the disease. It is not difficult to lay down a plan of treatment, (theoretically,) for each particular variety, but to distinguish that variety at the bed-side, is always of great difficulty, and is sometimes altogether impossible.

Who will pretend to distinguish between an obstruction of the common duct caused by an inflammation of this canal, and such as may arise from spasm; a viscid substance secreted within it; a mechanical pressure from the duodenum; or a too inspissated condition of the bile itself? yet these different causes operate in their turn, and require a difference in treatment. The first would perhaps only yield to the abstraction of blood; the second would call for ample doses of opium, which would be destructive in the first. The third would not be benefited by either of these treatments, and the fourth might require a long application of constitutional remedies. We cannot in our present ignorance, lay down the diagnostic marks, if they possess any; and from this inability we are obliged, to treat the disease more or less empirically.

1902. But in the absence of the signs, that might lead to the belief of a permanently deranged state of the liver, spleen, pancreas, or other viscera, we may take upon trust, the other causes enumerated, (par. 1877,) and place some reliance upon the state of the pulse, and general condition of the system, as guides for general remedies. It may however be observed, that in the absence of all inflammatory action in any portion of the liver or its appendages, the action of the heart and arteries, in jaundice, is below the natural standard of frequency, and consequently free from all pyrexial movement; and this will obtain most *probably* in each of the cases supposed above, with the exception of the first—in this case, we believe ourselves warranted in saying, the system always will betray a phlogistic movement.

1903. It will therefore be at once admitted, that the first of the enumerated causes, will require for its removal a different treatment from those that immediately follow. On this admission, we would treat every case of jaundice with an increased pulse, by blood-letting; and this to an extent, that would insure a constitutional change of arterial action—that is, there should be a tendency to syncope, or a decided sickness of stomach. This must be followed by local depletion by leeches or cups, between the navel and the lower extremity of the sternum. The bowels should be kept open by *castor oil* and injections; and the patient made to drink freely of gum Arabic water, flaxseed, or slippery-elm bark tea. Care should be taken to avoid all stimulating articles, and the patient be confined to these articles alone, for both nourishment, and drinks. The oil should be the only purgative; but even this, must not be unduly urged.

1904. We believe, that when spasm of the ductus choledocus is the cause of the disease, it will like that caused by biliary calculi, be attended with pain, and this oftentimes of a very severe character—in both these cases, opium in large doses, will

perhaps be the only effectual remedy. But in this belief, do not let it be forgotten, that the pulse must be carefully consulted before we administer this powerful remedy—for should there be an increased pulse accompanying either of these cases, bleeding to an effectual amount must precede the use of the opium. This will be absolutely necessary, unless the pulse be slow and sluggish; thus manifesting a freedom from all local irritation. Indeed, could we be certain, that gall-stones are the cause of the obstruction, which we can sometimes be assured of from former illnesses of the patient, the bleeding, aided by a long-continued use of a moderately warm bath, should precede every other attempt to relieve pain—it will dispose to the necessary relaxation of the biliary ducts, and render the action of the opium more efficient, as well as less hazardous. On this account, we are surprised at the expressions of authors, who attribute as a cause of jaundice the torpid state of the biliary ducts, when connected with gall-stones. As if this condition of these tubes, would not be the most favourable, for the transmission of these bodies; especially, as we have no evidence that the ducts possess a peristaltic motion, from the liver to the duodenum.

1905. Perhaps this plan of treatment would also succeed, when the duct was obstructed by a viscid secretion within its tract; as we know that depletion by blood-letting, changes the mode of action of every secreting surface. Should it arise from any mechanical pressure exerted by the contents of the duodenum, and which, we have reason to believe, is a more frequent cause than is generally admitted, a brisk cathartic will sometimes quickly remove the disease. We have seen a number of instances of jaundice speedily relieved by two or three active purges. If it be caused by an inspissated condition of the bile, it will not perhaps be removed without the use of constitutional remedies; and mercury, with the extract of taraxacum, will be the most effectual.

1906. We have seen jaundice removed in several instances, by the liberal use of the supercarbonate of soda, and keeping the bowels loose by castor oil. How the soda acted to produce this end, we do not pretend to say—we merely record the fact. Emetics are highly recommended by some—Darwin extols their efficacy, especially in two cases; these were cases produced by calculi; in such instances they may succeed sometimes; but as a general remedy, we would seriously deprecate their employment, unless there was the most entire evidence, that there was no febrile movement in the system at large, or inflammatory irritation in the ducts themselves. Specifics for jaundice have had their day; and are now no longer employed by the well-edu-

cated physician—it is needless therefore to enumerate the many that have been in vogue.

1907. Of the mode of treatment proper in jaundice arising from a diseased condition of the liver itself, or any of the neighbouring, or remote viscera, and giving rise to the green, or black jaundice, we can say very little, to encourage perseverance, or flatter hypothesis. The cure must depend upon the removal of the remote cause, and not upon any application for the specific symptoms of jaundice—consequently, the cure of this complaint is altogether dependent upon the disease that gave rise to it.

SECT. III.—DIARRHŒA.

1908. By this we understand a too frequent discharge of the feculent contents of the bowels without tenesmus. The great variety of appearance in the matters discharged, has rendered it proper to divide this disease into several species; and first, of

1. *The Feculent Diarrhœa.*

1909. Whatever is capable of increasing the peristaltic motion of the bowels, or even perhaps a portion of them, may occasion the disease in question; hence the frequency of this complaint.

1910. This increased action of the bowels, in this species of diarrhœa, may be occasioned both directly, and indirectly.

a. Directly.

1911. By improper or irritating substances being carried into them; as food of a bad quality; or too much of that which may be good, when taken in improper proportions.

1912. The stomach not being able to digest its contents, the bowels become stimulated by the ill-subdued food urged into them, and make an effort to dislodge it as quickly as possible, by increasing their peristaltic motion; hence, their contents are rapidly and successively transmitted through them, and occasion what is called the feculent diarrhœa. Or it may be occasioned by the presence of bile in the duodenum; this bile may be either in too great quantity, or it may be highly depraved in its quality; and may in either condition so affect the peristaltic motion, as to produce diarrhœa.

1913. This is the most simple form of diarrhœa; and it very often effects its own cure by the profuseness of its discharge: but should it not, a dose of magnesia, if there be any evidence

of acidity, or castor oil, or rhubarb, if there be none, will almost always be sufficient for this purpose. Should it not, it may be repeated, but followed by an appropriate dose of laudanum at bed-time, should the fever not be considerable.

1914. Should there be much nausea, or many efforts to puke, it will always be best to cleanse the stomach, as these symptoms are almost sure to arise from the presence of a portion of whatever substance may have been offensive. For this purpose, we have ever found calomel, in proper doses, the best possible remedy; for it is almost as certain to cause puking under such circumstances, as a medicine decidedly possessing emetic properties, and this without the inconvenience of the latter remedy. The dose of calomel for the adult may be eight or ten grains.

1915. This complaint should never be neglected; especially at such seasons of the year, as are most favourable for its production; namely, during the excessive heat of summer, or when the weather becomes cool in the fall; for when not attended to, it is apt to degenerate into a habit, and to be of extremely difficult removal.

b. Indirectly.

1916. Diarrhœa may be induced by the bowels sympathizing with some other part; as with the skin, upon a sudden check of perspiration; the application of cold to the surface of the body; or by the improper use of the cold bath. With the brain, from agitation of mind, particularly that of anger and fear.

1917. When diarrhœa is produced by indirect agency, especially cold, it will frequently continue, even after the cause which produced it is removed. This kind is rarely accompanied by pain unless fever be excited; in which case the bowels suffer sometimes very much; the skin is often very hot and dry; considerable thirst, and white tongue. There is almost always mucus mixed with the fæces in such cases.

1918. This case is treated very much like the former, except where pain and fever attend; then castor oil is the best remedy. This should be given in ounce doses, every two or three hours, until it operate freely; or until the oil is observed to pass through the bowels with the fæces. If considerable pain continue after the operation of the oil, the warm bath may be used most advantageously. If perspiration be excited, the fever will quickly pass, though the tormina of the bowels may remain.

1919. Should this be so, an injection with a proper quantity of laudanum may be given. This plan of purging, bathing, and giving laudanum, must be continued as the symptoms may indicate, until the disease ceases.

1920. During the whole management of diarrhœa the strictest regard must be paid to the diet, and drinks of the patient. The former should consist of either of the diluted jellies of rice, tapioca, sago, or arrow root; the latter should consist of thin flax-seed tea, barley water, rice water, gum Arabic water, or an infusion of the slippery-elm bark.

1921. We are aware, that many are opposed to the use of laudanum in the early stages of diarrhœa; but we think they are too indiscriminate in the rejection of this remedy. We are ourselves adverse to its administration, where the bowels have not been freely opened by the exhibited medicine; where there is fever; or where there is no pain; but where neither the want of due purging, nor fever make a contraindication, we almost always give a few drops at night, and especially if the patient be very restless, or in pain. We are persuaded we very much abridge this complaint by this plan; and most certainly prevent its running into a chronic form, after we have removed, as far as in our power, the exciting causes of the disease.

1922. During the continuance of this disease we strictly forbid animal food, or animal juices under any form. No solid food whatever should be given during the existence of this complaint; and every kind of liquor, whether fermented or distilled should be peremptorily forbidden.

2. *Of the Bilious Diarrhœa.*

1923. In this species the fæces are loose, copious, and of a bright yellow, or green; and the bowels are stimulated to inordinate action, by an overcharge of bile either vitiated, or not. The influence of a hot sun upon the actions of the liver, is well known to every body; and it is familiar to common observation, that after a spell of very warm weather, even the healthy evacuations give evidence of its rapid formation, and sometimes of its abundant absorption. Thus the fæces are observed to be loaded with bile, and the urine to be deeply tinged with it.

1924. During our summers, the action of heat is both uniform and excessive; the liver feels its influence, and is forced to an inordinate secretion of bile, which being suddenly and rapidly poured into the bowels, stimulates them to an excessive action, either by quantity or quality, or both, and thus the "bilious diarrhœa" is produced.

1925. This action of the bowels, as in the species just considered, sometimes relieves them of their stimulating contents, and will by this means effect their own cure—hence this species, like the other, may be ephemeral; and is not more formidable

than the feculent species, unless the formation of bile goes on almost indefinitely; or that fever is provoked.

1926. The plan of treating this form of diarrhœa will suggest itself; the bowels must be evacuated of their contents; and that by the remedy which so decidedly and successfully exerts a controul over the actions of the liver; namely, calomel, in small, but repeated doses, until, from the change in the appearance of the evacuations, it is judged the purging has been carried sufficiently far; that is, when a little of the mucus of the bowels appear in the stools.

1927. At night, in the absence of fever, the motion of the bowels should be tranquillized by a proper dose of laudanum—preferably by injection if practicable; if not, it must be given by the mouth. Should the complaint reappear the next day, the calomel may be repeated, but at longer intervals, but only in sufficient quantity to procure a decided evacuation; this should again be followed by the anodyne, and so on until the disease disappear.*

1928. The diet and drinks should be the same as before recommended; except, that rennet whey answers an admirable purpose, both as nourishment and drink, in this species of diarrhœa.

1929. If fever attend, more purging will be required than if it be absent; but after the bowels have been properly evacuated by the calomel in the beginning, castor oil, or rhubarb and magnesia, should be used.

1930. If we can place any reliance upon the accuracy of our own observation, we can with much safety declare, that beef tea or any other diluted animal extract, has uniformly been attended with bad consequences, in the commencement of almost all affections of the bowels; and this from a twofold action. 1st, it is too stimulating when applied to the surface of the irritated bowels; and 2d, in affording too much nourishment for the febrile condition of the system. We therefore make it a first, and positive direction, that no animal substance of any kind, or in any shape, shall be given in diarrhœa, even in its most simple form, when attended with bilious discharges; and we positively prohibit liquor of every kind.

1931. But we must not be understood to forbid all nutritious

* Dr. Scudamore relates the following case to show the advantage of topical bleeding in obstinate and painful diarrhœa.—*Observations on Mr. Laennec's Method, &c. p. 59.*

"A gentleman had been troubled with diarrhœa, which was often painful, for two or three months. It had resisted the usual treatment by medicine. By one application of leeches near the rectum he was cured."

substances to the patient; this we do not do; but we are very particular, both as regards quantity and quality, when nourishment is permitted.

1932. It may be proper to observe, that in the species of diarrhœa we are now considering, we have not made as some have, (Good, &c.) yellowness of the evacuation essential to it—we very often see them of various shades of green, from the bright grass-green, to the bottle or black-green; this is sometimes accompanied by a frothy top, or the whole mass looking spongy, resembling very much the green production on the top of stagnant water; at other times, it is of pitchy darkness, and tenacity. Where the last is observed, it has always been preceded by a pretty obstinate fever, which does not usually yield until these black evacuations come away.

1933. Much injury has been sustained by mistaking green bile for acidity, and administering the cretaceous mixtures, so as to arrest the discharge suddenly; authors abound with cases of cholera, convulsions, fever, &c. arising from this cause. It therefore becomes very important that the one should not be mistaken for the other. But we shall have occasion to revert to this subject presently.

3. *Of Mucous Diarrhœa.*

1934. The evacuations consisting of, or containing, a copious discharge of mucus. This species is commonly produced by a sudden check of perspiration, or the sudden application of cold to the surface of the body and feet. We have seen it follow in two instances, in children, the improper use of the cold bath.

1935. Fever rarely accompanies this complaint, in its milder forms; and it is of easy management in general; but sometimes we have known it very obstinate. The remote causes should not be repeated, if possible to prevent their reapplication; if it proceed from cold bathing, it must be discontinued; and if from atmospheric cold applied to the body, additional clothing must be resorted to, &c.

1936. The bowels should be gently purged by castor oil, and its operation followed in the evening by a suitable dose of laudanum. This plan must be pursued daily, until the bowels are relieved; or they may be opened by rhubarb and magnesia during the day, and followed as before directed, by an anodyne in the evening. The diet should consist of such articles as have been already directed; and the patient take freely of an infusion of slippery-elm bark, or gum Arabic water.

1937. Dr. Good condemns the use of purgatives in this species

of diarrhœa, but upon no good ground, that we can perceive—our experience is decidedly in favour of the plan just proposed.* He would certainly employ laxatives in dysentery, to which it bears a pretty strong analogy, as far as regards effects and appearances; only in the mucous diarrhœa, there is in general no vascular excitement, and therefore most probably no very active inflammation, though certainly considerable intestinal irritation; whereas, in dysentery, more or less always attends. Dr. Good certainly would evacuate in catarrh, to which he says it has “a striking resemblance.”

1938. He and others recommend in this affection, or in any “other looseness produced by a sudden chill upon the surface, small doses of ipecacuanha, with or without opium.” We have used this prescription at night, and we think with evident advantage; but it should not be given in the day, unless there is considerable pain; and then only, after an evacuation of fæces has been procured.

4. *Chylous Diarrhœa.*

1939. This form consists of chylous or milky evacuations. It would appear that there is a deficiency of bile in this disease, as the dejections are not tinged with this substance—consequently, this complaint would seem necessarily to be accompanied by some derangement of the hepatic system, either positively or accidentally. The liver may not be in a condition to secrete this fluid abundantly, or its flow into the intestines is by some means or other impeded.

1940. In treating this complaint, whether it be pretty suddenly induced, or it follow a diarrhœa, we have always prescribed for the condition of the stomach, and we may safely say, we have generally succeeded. We should withhold almost all food from the stomach, that its weakened powers need not be longer overtaxed. We therefore confine the patient to small quantities at a time of rennet whey or gum Arabic water—nothing else is permitted. We endeavour to restrain the passages, by an anodyne injection, of full power, at night; and give during the day minute doses of calomel—say a grain every four hours, with the fourth or sixth of a grain of opium. We persevere in this treatment for a few days, unless the calomel urge the bowels too much; in this case, we diminish the quantity of calomel, and increase that of the opium.

* It will be perceived, that by *purgatives*, we only mean, the most lenient of the class. We would deprecate the use of the more active substances of this class of medicine, as earnestly as Dr. Good; but we cannot at present reject the use of castor oil, or rhubarb and magnesia occasionally.

1941. We have seen the most decided relief from this plan; and by giving the stomach very little to do, it becomes reconciled to its duties, and fulfils them after a little while perfectly.

5. *Lienteric Diarrhœa.*

1942. "The rapid passage of the nearly unchanged aliment through the bowels, constitutes this species of diarrhœa." With children, it sometimes follows the other species of diarrhœa, and dysentery perhaps oftener. It is not accompanied by much acute pain, though the child appears uneasy after eating; but is immediately relieved by an evacuation, which is perceived to consist of the food a little while previously taken into the stomach. This complaint rarely comes on suddenly, and it may exist in different degrees. When a tendency to this complaint is first perceived, it should be instantly attended to, for it is one of those affections that rarely if ever cures itself.

1943. It generally commences during the chronic state of diarrhœa, by showing perhaps, that some one article of diet only has passed the bowels unchanged.

1944. This complaint seems to be seated altogether in the stomach itself, and owes its existence to the great irritability of this organ; for so soon as the food is lodged in it, it makes efforts, by an increased peristaltic action, to discharge it, and the intestines transmit it with equal speed to their extremity, there to be discharged. Dr. Good suggests that "the gastric juice may not be secreted in proper quantity, or with proper qualities;" this may be, but it is not sufficient to account for the phenomena; for this happens precisely in dyspepsia, but dyspepsia is not constantly attended with lientery.

1945. We have been in the habit of treating this disease very much after the manner of "chylous diarrhœa," to which it has a very strong resemblance, in the rapidity with which the food is passed through the tract of the intestinal canal; and it would seem to be but an excess of it—in the one, the stomach digests to a certain extent, but confessedly imperfectly, as the ill-cooked mass is hurried from the stomach into the intestines before it can be properly elaborated. In the disease in question, it tarries a still shorter time, and for the most part passes with little or no change.

1946. We have found this disease, generally speaking, to be a manageable one, when sufficiently early attended to; but when suffered to run on to the last stage of debility, little or nothing can be done; it but too generally proves fatal, as it for the most part takes place in feeble and worn out constitutions, that have

been exposed to the effects of hot climates, or after chronic dysentery or diarrhœa.

6. *Of the Chronic Form of Diarrhœa.*

1947. The several species of diarrhœa already treated of, may run into a chronic form of very difficult management, as well as of great danger; 1st, by neglect; 2d, by the continuance of the remote and exciting causes; or 3d, by improper treatment.

Of the Treatment of Chronic Diarrhœa.

1948. Every body has experienced the difficulty of removing a diarrhœa, after it has taken on a chronic form. This arises from several causes: 1st, because the hepatic system is now involved with the intestinal, in maintaining this complaint; 2d, because the stomach and bowels, independent of the condition of the liver, are seriously affected by either inflammation, ulceration, contractions, or intro-susceptions; 3d, because the influence of habit to too frequent dejections, is added to the original disposition.

1949. When the first cause of difficulty prevails alone, the disease for the most part is of pretty easy management; the symptoms, here, may consist of too frequent discharges, of a green, slimy, or curdled appearance; with loss of appetite, nausea, sometimes vomiting, and of increasing emaciation; the skin almost always dry, and very warm where covered; the urine scanty and high-coloured; the thirst great; and the disposition fretful, whimsical, or sluggish. Three indications here present themselves: 1st, to alter the nature of the actions of the stomach, bowels, and liver; 2d, to abate the frequency of the discharges; and 3d, to restore the lost strength of the parts immediately concerned, and the system in general.

1950. The first indication must be fulfilled by freely emptying the bowels by castor oil, rhubarb, or calomel; and then by giving small doses of calomel, that is, from a half to a grain, morning and evening, with three or four grains of prepared chalk, and from a fourth to an half a grain of ipecacuanha, and as much opium. The second must be attempted either by small doses, say four or five grains, three times a day, of rhubarb, or by the cretaceous mixture. At night a sufficient quantity of laudanum by the mouth, or by injection, should be given, to keep the bowels quiet until the morning.

1951. Nothing heating or stimulating should be given either as nourishment, or as drink; and every species of liquor, animal food, or broth, must be prohibited. The diet must consist only of such articles as the stomach can best manage, as milk and

water, gum Arabic and water, very thin arrow root, sago, or tapioca; rennet whey, barley water, or rice water. Nothing solid of any kind should be given. The occasional use of melted butter is found sometimes highly advantageous in every state almost of chronic diarrhœa. It is made by pouring boiling water on a lump of perfectly sweet butter in a tea-cup, and stirring it until it is melted; a tea-spoonful is skimmed from the top, and given several times a day. This prescription is however for children alone.

1952. The third indication may be fulfilled by the proper use of diet—permitting the use of weak broths, without vegetables being boiled in them, with the exception of rice; but even this must be strained from them before they are given. A soft-boiled fresh egg may after a while be given; or a little well-boiled rice, with sugar, very fresh butter, and a little nutmeg, may be made to follow from time to time.

1953. Where there is chronic inflammation, the disease must be considered not only very far advanced, but highly dangerous. Here we shall find the pulse is very much accelerated; pain will be experienced by pressure upon the abdomen; the skin will be hot and parched; the evacuations extremely frequent and offensive; a disposition to tenesmus; or the evacuations may be sparing, slimy, very watery, or bloody, though frequent; the thirst be excessive; and the tongue dry, red, and furred. All these symptoms, or the greater part of them, will attend chronic inflammation of the mucous tissue of the intestines.

1954. The indications here, are, 1st, to abate the local inflammation; 2d, to change the nature of the secretions of the liver and bowels, and to allay the irritation of the intestines; 3d, to diminish the frequency of the discharges; and 4th, to restore lost strength.

1955. The first indication must be attempted to be fulfilled by local depletion by leeches; by the occasional use of the warm bath; by blisters on the abdomen or thighs. The second, by the exhibition of the calomel in alterative doses; and by small, but repeated doses of castor oil. The third, by the occasional use of laudanum enemata, when they can be retained; or by its exhibition in small, but frequent doses, by the mouth. And the fourth, by proper diet, as above proposed; by exercise; and by change of air, or climate.

1956. In this and in the subsequent stage, it may be proper to observe, that nothing but rennet whey or weak gum Arabic water, should be given as nourishment, and even these in very small quantities.* Thirst is best slaked by toast water, given from time to time.

* We are persuaded, that one of the most operative causes against recovery, in every bowel complaint, is the too frequent exhibition of food, both proper and improper; especially during its active stage. The fear of weakness leads

1957. When this disease is still more advanced, and has been of long continuance, we have a right to suspect, what has been but too often proved by dissection to happen under such circumstances, contractions, ulcerations, and intro-susceptions. We have no diagnostic symptoms for these conditions of the bowels; and if we had, it might be justly doubted whether the knowledge of them would lead to any valuable practical end. We fear that in these cases, no other plan can be pursued, but a temporising one; for it is to be presumed, that every effort has been made during the previous stages of the disease to arrest its progress.

1958. Habit sometimes perpetuates the discharges from the bowels; this cause may be suspected when the evacuations occur at nearly stated periods of the day; when they are not continued through the night, and when the digestion goes on well, and the stools look natural. Children from the long continuance of diarrhœa, and those of sufficient age to feel a sense of shame, and especially those who have been schooled into good habits in regard to their evacuations, are always sure to obey the first impulse or warping the bowels give that a discharge is about to take place, and by this means no doubt have provoked an evacuation, which a little self-command might have checked. By this means almost all influence over the sphincter is lost, and the discharge is maintained from habit.

1959. Laudanum we have found the best remedy for this kind of diarrhœa, especially when combined with prepared chalk; it should be given as frequently as the state of the bowels would seem to require—that is, given immediately after each evacuation, and directing the patient not to obey the desire as long as they can possibly resist it.

SECT. IV.—DYSENTERY.

Character and Symptoms.

1960. We understand by dysentery, an inflammatory affection of the mucous membrane of the large intestines; this is attended by a frequent and irresistible desire to go to stool, accompanied by violent inclination to discharge the contents of the rectum, without a corresponding ability; the effort for the most

incessantly to error, on this subject; and neither reason nor experience is capable of destroying this absurd and dangerous practice. Every body would at once acknowledge it to be, not only preposterous, but even cruel, to place an additional weight upon the shoulders of a man who was staggering under the load already laid upon them; but they would think it right to do what is equally absurd and cruel to the stomach, by forcing upon it a fresh quantity of food, when it has not power to dispose of that which it had previously received.

part, ending principally, in the expulsion of mucus. This mucus may be tinged sparsely; or the discharge may be nearly or altogether blood—when the tinge is sparse, it is generally produced by a few drops of blood more or less pure—if the whole evacuation be stained, it is by the colouring matter of the blood diffusing itself pretty generally through the mass. When this happens, the discharge loses the appearance of pure mucus, and strictly resembles, what it is commonly compared to, the coloured “scrapings of guts.” Sometimes there will be a small quantity of fæces of a green and curdled appearance accompanying the discharge; at other times, a very small quantity of mucus, and a considerable proportion of pure blood.

1961. These discharges are always preceded by severe tormina or cutting pains, attended, and followed by tenesmus, to a greater or less extent—as a general rule, the greater the tenesmus, the more frequent the desire, and the ability less, to effect a discharge. In this case the evacuation is very small in quantity, and consists chiefly of mucus, or only of a little pure blood. The efforts are at times so extremely powerful and repeated, as to exhaust the patient very much; his face will often be covered with sweat, or he may even faint. When the tenesmus is very violent, it seems to destroy the power of the bladder to discharge its urine, a retention therefore occasionally takes place, which very much augments the sufferings of the patient. The lower part of the abdomen is generally hard, rather tumid, and always more or less tender to the touch. The stomach is sometimes nauseated; at other times, vomiting attends; the back for the most part is extremely painful; the patient however, most commonly lies upon it, with his feet drawn up. The skin is commonly hot and dry; at other times preternaturally cold, especially the extremities; the tongue is generally covered with a white fur, while its margin and tip, are oftentimes red. The pulse, accelerated, contracted, and tense; and always manifesting more or less fever; though it is declared by some, that dysentery is sometimes unattended by fever*—but we have never seen this in genuine dysentery, though we have frequently witnessed only a

* Sydenham describes dysentery as ordinarily unattended by fever; he says, “In the year 1662, cholera, dry gripes, or colic without stools and dysentery, were very frequent. In the following autumn the last two diseases returned; and in the midst of their raging appeared a *new kind of fever, which accompanied both diseases.*” He called this usual symptom of dysentery, the “*febris dysenterica.*” Cullen on the other hand, regards fever as a leading symptom of dysentery. We think it however every way agreeable to observation, that fever is generally in proportion to the disturbance or perhaps, rather to the degree of inequality, of sanguine distribution, and the degree of nervous susceptibility.

very slight degree of it; thirst always; and sometimes insatiable. The stools have a peculiar odour.

Diagnosis.

1962. This disease cannot well be mistaken for any other; its characters are too strongly and peculiarly marked, to need our dwelling upon its diagnosis, though Fournier and Vaidy have run a long parallel between it, diarrhœa, cholera morbus, and hæmorrhoids. But the severe suffering; the frequent and urgent calls to the pan; the mucous, bloody, sparing discharges; their peculiar odour, together with fever, will readily distinguish this affection of the bowels from every other, without our descending to further details.

Nosological Position and Pathology.

1963. Dysentery has been placed properly by Pinel, among the inflammations of the mucous membranes—for multiplied dissections prove, that this complaint owes its origin to an inflammation of this membrane of the large intestines, and it has rarely been found to transcend their limits.* Observation also proves, in the great majority of cases, that this inflammation is confined to this tunic; and, that neither the muscular, nor peritoneal coats are involved in the mischief.

1964. It has been almost uniformly supposed, that the bowels were ulcerated in dysentery, especially, when accompanied by bloody discharges;† all the older writers, from Hippocrates downward, have declared this condition essential to it. It was not until Morgagni's splendid work was before the public, that the faith in this opinion was shaken, as he cites many authorities, who declare they have frequently seen ulcerations in the bloody flux. But Morgagni mentions but a single case of this kind; we have therefore every right to conclude, he did not meet with them, or he would have mentioned it. Broussais makes no mention of ulceration, except when this disease is chronic; and Fournier and Vaidy, declare, that in twenty years experience

* In certain cases of dysentery, "*black vomit*" has attended; my friend Dr. Physick and myself saw two instances of this kind in two children, one five, the other seven years old—one died on the fifth and the other on the sixth day of the disease. In these instances, an inflamed stomach, similar to that producing yellow fever, complicated these cases.

† "In dysentery the blood, however copious it may appear, oozes from a large extent of surface of the lower end of the ileum, and from that of the colon, without ulceration or gangrene, and evidently from the vessels of the villous membrane, which during health secrete mucous and intestinal fluid."—*Craige's General and Pathological Anat.* p. 208.

and research in a public hospital, where they witnessed dysentery in all its forms, that they found ulceration to be extremely rare; and never scarcely, but where this disease had assumed a chronic form. Bayle and Cayol, also say, that ulceration is not the ordinary result in dysentery, properly so called.

1965. Dissections show that the mucous membrane of the large intestines, and sometimes, though rarely, a part of the small, are found red, or brown, rough, and somewhat thickened in their whole extent. This rough surface is besmeared with a glairy, or purulent matter, or a bloody sanies. This appearance has led some, not well skilled in post mortem examinations, into a belief that the whole of the mucous membrane was deeply ulcerated. But if the process recommended by M. Cayol be followed, this error will be quickly corrected. He directs, that this matter should be gently scraped by the back of a scalpel, and the intestine washed in plenty of water; we will then see that the substance which was taken for ulcerations, will detach itself and disappear. It is however acknowledged by some, that ulceration may occasionally be discovered; but as they do not appear to be in proportion to the violence, or extent of the previous inflammation; and as others have never met with these ulcerations, even in persons who have died of violent bloody dysentery, it is fair to conclude, that ulcerations are not the essential cause of this disease.

1966. There appears to be something peculiar in the œconomy of the intestinal mucous membrane, while labouring under certain conditions, or under certain states of inflammation. For in chronic diarrhœa, which we cannot but think is maintained by a sub-acute form of inflammation, ulcerations are frequently met with; especially in portions of the cœcum, rectum, and in the sigmoid flexion of the colon; sometimes, though rarely, in the last convolution of a small intestine, but never in the duodenum. From this it would appear, that the intensity of the inflammation does not direct the formation of ulcers, since it must be acknowledged to be much more intense in dysentery, yet where they are rarely found, than in the chronic inflammation of a long-standing diarrhœa—they are particularly common in the diarrhœa which attends the last stage of phthisis pulmonalis, agreeably to Bayle and Broussais.

Causes.

1967. Dysentery may be sporadic, endemic, or epidemic, as is proved by many authorities; and it assumes some difference in type if we credit these authorities, as it may appear in the

one or other of these forms. It is more common at the last of summer or in autumn than at other portions of the year. It attacks all ages and sexes; being however more fatal to females and children than to males.

1968. This disease may be caused by a sudden suppression of perspiration, as passing suddenly from a warm atmosphere while in a state of perspiration into a cold one. Hot and humid atmospheres also act as remote or predisposing causes. High or mountainous, as well as very low situations, are liable to dysentery; and certain soils appear to dispose to the endemic form of this disease, as it constantly happened, that this disease first appeared in the lime-stone part of the soil in Abingdon township, Montgomery county, during the five years residence of the author in that neighbourhood. He also has had occasion to observe the same prevalence of dysentery in parts of Centre county of this state, (Pennsylvania.)

1969. The neglect of cleanliness has been a fruitful source of dysentery, especially in the army. Fournier says, they "received into the hospitals, soldiers encrusted with excrement and dust." Unwholesome food has also been assigned as a cause of this disease. In epidemic dysentery, a peculiar disposition of the air is the reputed cause; but this can be aided by unwholesome aliment, drinks, and habitations, as with troops in camps, &c.

*Is it Contagious?**

1970. This disease has been looked upon by many as contagious; we have been very attentive to this question ever since our commencement in business; and our opportunities have been ample, as well as frequent. But in no one instance have we had reason to believe it to possess this quality; an epidemic disease, we are certain, has been mistaken for a contagious disease, in many of the reputed instances of contagion of this complaint, having appeared throughout a community.

* Dr. Cullen says, that dysentery is always contagious; in this he is followed by many writers, as well as its being a popular belief; Pringle, Hunter, Harty, &c. declare the same thing. To this opinion Dr. Johnson well remarks, that, "either the dysentery of their day was a different disease from what it is now, or these eminent individuals were betrayed, by their preconceived ideas, into a mistake. It is surely of very little present importance which of the alternatives may be the truth; for opinions must now-a-days be decided, not by authority, but by the touchstone of facts carefully observed, and carefully recorded."—*Tropical Climates*, p. 228.

Terminations.

1971. Dysentery may terminate in health, in another disease, or in death; our prognostic must be founded, therefore, upon its approach to one of them.

1972. When our remedies have been successful, we find an abatement in the severity of the symptoms which mark this disease. Fever abates; pain diminishes; the calls to the chair become less frequent; tenesmus is appeased; the evacuations assume a natural complexion; the bloody and mucous discharges disappear; the strength renovates, and convalescence ensues.

1973. This happy termination, however, is not always permanent; errors in diet, or improper exposure, will, and too often do produce, a return of this formidable complaint; and this at a time, when the powers of the system are still far from being restored—when this happens, the patient quickly pays the forfeit of his life, or a conversion into another disease takes place, which leaves him a poor choice of evils; either a more or less speedy death, or an endless disease. It therefore behooves the patient to pay the strictest regard to regimen, clothing, and exercise. The first should be mild, and chiefly consist of vegetable substances, as rice, in its various forms, tapioca, arrow root, &c.; and this should be continued for some time, or until pain has entirely ceased; the evacuations discharged without blood or mucus; without tenesmus, and of proper consistence. The strength should above all be consulted; for if this do not accumulate in a proper ratio to the quantity of food taken, and the apparent freedom from disease, all is not right—there is some lurking mischief, which should as early as possible be detected.

1974. For this purpose, the evacuations should be examined, the urine inspected, and the pulse, especially towards evening, be carefully consulted; and if the first be not healthy in their character, the second too abundant and pale, or too sparing and high-coloured, and the third irritated, we may be certain, that convalescence is not about to be firmly established. The patient should be again put upon the moderate use of the vegetable jellies of rice, tapioca, the demulcent drinks, &c. and the bowels should be freely opened by castor oil, or rhubarb. This diet should be persevered in, and the bowels kept free, until a change of the circumstances for which they were ordered, takes place. And if these unpleasant conditions be removed, the patient may again gradually resume a more generous diet—a little chicken-water, or beef-tea, the soft end of a few oysters, or a soft-boiled egg, may be added to the other diet. His drink should still be the same as before; that is, as during his disease; or he may take toast-water, or some mild syrup and water; but no liquor of any kind.

Conversion into other Diseases.

1975. Should a favourable termination of dysentery be realized only in part, the acute may be changed into the chronic form, diarrhoea, dropsy, &c.

Chronic Form.

1976. Chronic dysentery may arise from the recuperative powers of the system being unequal to the complete restoration of the parts that were involved in the acute stage of the disease; this may happen from a feeble condition of the bowels, or from the disease having been extreme in severity. The constitution may have sufficient power to prevent immediate death, though it may be insufficient for the establishment of health. Or it may take place from errors in diet, suppression of perspiration, the improper use of stimulants, &c.

1977. This form is rarely attended by manifest fever, though we believe the pulse is always more or less irritated; the patient continues without an increase of strength; the appetite is weak and oftentimes whimsical; spasms of greater or less frequency are still felt in the bowels; frequent dejections, and more or less tenesmus. The patient is very susceptible to cold; is listless, and desirous to maintain a horizontal position; and when he lies, he folds himself up into as small a compass as possible. Fournier says, that patients of this kind, "hide their heads beneath the bed-clothes;" he says this is characteristic, and that every physician of experience will recognise at first sight a patient of this kind, by the squat position he assumes in his bed—we have never observed this.

1978. The countenance is sad, pale, or yellow; and the whole of the forearms and hands become covered with an earthy-looking crust; this never fails to be a bad sign. The skin is dry, and rough to the touch; the lips and gums are without colour; the face becomes œdematous sometimes; the patient continually wastes; the dysenteric odour is even stronger than in the acute; indeed, it becomes almost insupportable. The pulse is feeble, slow, intermittent, with evening exacerbations sometimes; the belly is hard, but not painful; the urine is brown, scalding, and passes off with difficulty; the feet and legs swell, and eventually become hydropic.

1979. Fournier observes that the chronic dysenteric patients, are in several respects like the phthisical; namely, that "they preserve their senses, and yield themselves to the formation of

projects, that would require a long life to fulfil; also like the consumptive, they have an inordinate desire for opium; and of which they will support enormous doses." Eventually, lientery takes place, and carries off the patient.

Pathology of Chronic Dysentery.

1980. Dissection shows that in these cases it is the mucous membrane of the intestines that chiefly suffers; it becomes thickened, rough, covered with pustules, and ulcerated.

1981. We may remark here, that this process does not appear to depend upon the extent or severity of the acute stage of the disease; for this frequently passes, without this consequence; and this where every symptom gave evidence of the grave nature of the disease. It seems rather to betray, that for ulceration to take place, requires some peculiar condition of the part involved in the previous active inflammation, rather than in its severity or the extent of irritation; and hence, in examinations after death from dysentery, ulceration of the mucous membrane of the intestine is frequently absent.

Complications.

1982. In dysentery death may ensue simply from the effects of the particular fever with which it may be complicated. For in some parts of the world it may be joined, agreeably to many authorities, to "adynamic, ataxic, or typhus fevers." In this country, these complications are rare; indeed we have never seen such a combination; that is, as either of these fevers joined to dysentery, and having an origin independent of the condition of the mucous membrane of the intestines itself. The dysentery in many instances doubtless, has in its course assumed apparently these conditions, like all other diseases of the febrile kind of high action, when the first stage has been neglected, improperly treated, or when its force was beyond the protecting powers of the system to resist it with success. Yet, notwithstanding this, we must insist that, in this portion of our country it has been uniformly inflammatory, as far as our observations have extended. The danger therefore of dysentery, will, *cæteris paribus*, be in proportion as the fever accompanying it shall depart from a pure inflammatory fever. But to return:—

1983. When dysentery terminates in death, it is as we have already observed, sometimes by gangrene of the intestine. When this is about to happen, several changes take place in the general symptoms—pain ceases suddenly; the pulse becomes slow,

small, and unequal; delirium, if it had existed, ceases, and the patient, as in yellow fever, thinks himself well, and nearly the same symptoms take place as in enteritis, which see, par. 2028. Termination by gangrene however, is far from being as frequent as has been declared by some writers, especially Starck, who says all that die of this disease, die from gangrene. Now, modern pathologists do not confirm this assertion; for many, as Broussais, Cayol, Bayle, Fournier, Vaidy, &c. deny it. When gangrene does take place, death is generally produced more rapidly, than when this happens from febrile irritation.

Prognosis.

1984. Dysentery may always be considered as a disease of severity; and as one dangerous in proportion to the intensity of the febrile, and other symptoms. Fournier says, that this disease is sometimes without fever—this he calls “simple dysentery,” and considers it free from danger. We cannot pretend to judge how far this may be true; as we have never seen a *dysentery*, as we said before, unattended by fever, though we have known this to be slight. In our estimation then, it may be looked upon as one, if not at the moment absolutely dangerous, yet as constantly liable to become so, as there is no security against an aggravation of symptoms, and this sometimes from apparently small causes. Errors in diet; improper treatment; imprudent exposure, or an unusual susceptibility of the system, may at any moment cause an alarming increase of disease.

1985. When dysentery is epidemic, the danger may be increased by the character of the fever with which it may be accompanied; for in proportion as this fever may be dangerous in itself, will be that of dysentery.

1986. Evacuations accompanied by purulent discharges, is always a bad sign, as it announces the suppuration of the mucous membrane. Or if the evacuations be very frequent, very offensive and cadaverous; very thin and black; or if they be discharged involuntarily, or *living* worms make their escape in the bed, the prognosis is very bad. Hiccough is also a bad sign; and if the mouth be covered with aphthæ, it is sure almost to be fatal.

1987. If after severe suffering from pains in the abdomen, and these attended by violent fever, they should cease suddenly, we have reason to fear that gangrene has taken place. Or if the evacuations have the appearance of bloody water, or like the greasy water in which meat has been boiled, and extremely fetid, the danger is extreme. If there be excessive thirst, it is also bad.

1988. Hicough in an advanced stage of the disease is always unfavourable, though not so in the commencement of it. But the discharge of a hard or concrete mucus, so resembling membrane, as to give rise to a belief that the internal coat of the intestine has been thrown off, is not always a fatal symptom. The same may be said of the little masses, supposed to be bits of flesh, that are occasionally rendered in dysentery. Fournier says they are nothing but consolidated blood, portions of which have been retained in the intestine. He also says, that pimples around the nose and eyes, indicate a long, and dangerous disease.

1989. On the other hand, if the fæcal evacuations become consistent, the disease may be considered as having very much diminished, and that an approach is making towards convalescence. If fever abate; if thirst slacken; if pain gradually subside; if tenesmus moderates; if the evacuations become less frequent, with an increase of genuine fæces; if the skin relax, and be disposed to moisture; if the patient lay straighter in bed; if the urine be sufficiently abundant, and deposits a sediment, and the tongue begins to clean, we may generally pronounce a considerable amendment. It may be well to remark, that the appearance of *pure* blood, even in considerable quantity, is not to be looked upon as unfavourable—indeed, we have thought in several instances where it was pretty abundant, that it afforded much relief, as it seemed to act like a leeching to the inflamed intestine.

1990. If to these be added tranquil sleep, an increase of muscular strength, and a return of a natural and moderate appetite, we may with considerable safety pronounce the patient out of danger.

Treatment.

1991. We have said, that we had seen much of dysentery, and that it had constantly in this portion of our country, presented the character of an inflammatory disease; and that this obtained in the beginning, in all instances within our recollection, to a greater or less degree. This character continues to present itself at this moment, (1830,) in the several instances we have now under care; nor have we heard of any contrary statement, from any of our friends—we have declared, that post mortem examinations make the proximate cause of dysentery to consist of an inflammation of the mucous membrane of the large intestines; and consequently, that its treatment will consist in a strict antiphlogistic plan.

1992. Bleeding is almost constantly necessary in dysentery; and if there are cases in which it is not required, or that it is improper, they offer but exceptions to the rule, either from the

mildness of the character, or the peculiarity of the type of fever, which accompanies this disease. As regards the first exception, we have certainly met with cases in which the circumstance mentioned existed, and we did not bleed—but in such instances, the pain and tenesmus were inconsiderable; more or less fæces constantly presented themselves in the evacuations; the fever was very slight, and the bowels easily evacuated by very mild cathartics, or gentle laxatives. In such cases, it is generally sufficient, that a dose of castor oil be given during the day, and a moderate quantity of laudanum at night, aided by a properly regulated regimen. And as regards the second, or peculiarity of type of the fever, if it be such as will not bear the lancet, it certainly should not be had recourse to. But do not let us be deceived upon this point, by mistaking the character of the pulse; a risk every way likely to be run, as perhaps there are no other affections of the system, besides those of the alimentary canal, in which the pulse is so uncertain a guide, to the inexperienced. For if the bounding, full pulse, that attends pneumonic and some other affections be taken as the guide for bleeding in dysentery, we should rarely, or never bleed in this disease; for such a state of the arterial system is seldom or never found to attend the affections of either the intestines, stomach, or abdomen.

1993. Pain, tenesmus, mucous discharges, their urgency or frequency; heat of skin, acceleration of pulse, and thirst, or much blood,* are to be our therapeutical guides. If much pain attend, it can only arise from the intensity of inflammation; nor can the other enumerated symptoms have any other cause; but above all, the entire constipation, that almost always takes place when this disease exists in any force, calls imperiously for the abstraction of blood; nor is there any other single means, capable of affording the necessary relief. We therefore without hesitation have recourse to it, whenever it is thus called for; nor are we very sparing as regards quantity in some instances; being certain, that any quantity this side of positive effects, will be of little service.

1994. By positive effects we would wish to be understood, an

* “When blood appears alarmingly in the stools, whether the fever run high or not, venesection may be employed without the smallest apprehension of that bugbear—DEBILITY.”—*Johnson on the Influence of Tropical Climates upon European Constitutions*, 4th ed. p. 218.

The condition pointed out, for which bleeding is so confidently and properly, as we believe prescribed, is of very rare occurrence in our climate—so rare indeed is it, that we do not remember ever to have seen an excessive discharge of blood attend dysentery—but if it occur, we are of opinion that topical bleeding would be the best remedy—in such cases, we would leech from the anus.

abatement of pain, a diminution of the heat of skin, a reduction of the pulse, paleness, and even nausea,* when the symptoms are urgent. We repeat the bleeding, and have recourse to leeching, as directed for enteritis, or peritonitis. In a word, the general treatment is so precisely similar, that it is unnecessary to detail it here.

1995. In dysentery, however, the employment of laxative medicines is more imperiously called for than in enteritis; especially where the constipation is complete—that is, where no fæces show themselves. The *ol. ricini*, or castor oil, is almost the only laxative, when the stomach will bear it, that can be advantageously employed. This should be given in small and repeated doses, until fæces appear in the evacuations—and this should be made to take place, if practicable, three or four times in the twenty-four hours.

1996. The active cathartics should never be employed; for ample experience in the commencement of our treatment of dysentery, has satisfactorily proved their inexpediency—for the constipation is never removed by them, but at the expense of the revolt of the stomach, and an increase of pain, and an aggravation of every other symptom.† Many of the French practitioners proscribe even laxatives in this disease, as they do in enteritis—but we do not hesitate to use them; and for the same reasons as is given for employing them, in that disease.

1997. It sometimes happens that the castor oil cannot be taken, or it will not be retained;‡ when this obtains, we generally sub-

* “Dr. Mortimer, in a report, draws the attention of the profession to the employment of *ipecacuanha* in dysentery, given in nauseating doses immediately after bleeding, either general or topical, followed by a dose of castor oil. This remedy was exhibited to the extent of five grains, (mixed with some powdered gum Arabic,) every hour or second hour, as the patient’s stomach would bear it without actual vomiting. During the taking of this medicine, no fluids were permitted to be swallowed. The nausea is rather distressing, and vomiting is often induced, but not desired. Sweat is generally induced. The improvement of the biliary secretion under the administration of the *ipecacuanha* was manifest.”—*Johnson’s Med. Chirur. Rev.* for Oct. 1832, p. 409.

† A most common, and mischievous error prevails in the treatment of dysentery, (arising from a *theory* of this disease,) namely, purging freely by the more active cathartics, until *scybalæ* are removed. Cullen was an advocate for this active purging. The notion of these hard substances being the cause of dysentery, gave rise in part to this practice; but unfortunately for the hypothesis, these balls are rarely met with, and appear to be rather the consequences of returning power in the intestines, than the cause of the disease.

‡ Sometimes the oleaginous mixture will sit upon the stomach, when the plain oil will be rejected. This is made by triturating an ounce of the oil with a quantity of powdered gum Arabic and loaf sugar—adding gradually six ounces of water—a table-spoonful of this may be given every hour until it procure fecal discharges.

stitute the sulphate of magnesia and the tartrite of antimony, when no nausea attends, with much advantage.*

1998. Should pain, tenesmus, and fever continue, bleeding or leeching should be again resorted to; *bleeding*, if with these symptoms the heat of skin be considerable, and the pulse still active; *leeching*, if these two last do not obtain. Tenesmus is one of the most troublesome symptoms that attends this disease; in some instances an almost constant nusus is kept up, by the rectum urging the patient to frequent, but unavailing efforts to discharge the contents of the bowels; producing at the same time, a sensation as if the whole of the intestines were escaping. These efforts are so often repeated, that the patient becomes exhausted by their importunity and pertinacity; sometimes obliging him to rise from twenty to eighty times in the twenty-four hours. Zimmerman says he has seen patients go two hundred times in the same period. Much injury is sometimes sustained by the patient, by constantly obeying the desire to go to the *commode*—this should be resisted as much as possible; and if the patient be firm in his purpose, he will find he can resist for a long time these importunities of the rectum. This fact we have well ascertained in our own experience; and the attempt to restrain these inordinate demands to go to the pan will often succeed. This was well known to the ancients, and it is especially recommended by Celsus, lib. iv. xvi. “Et cum in omori fluore ventris, tum in hoc preceptue necessarium est, non quoties libet desiderare, sed quoties necesse est; ut hæc ipsa mora in consuetudinem ferendi oneris intestina deducat.” Leeching the anus is highly useful in this case.

1999. It is every way important, that this irritation should be allayed as quickly as possible; and for this purpose, besides the remedies just proposed, we must have recourse to opium, in some shape or other. Laudanum, or a watery solution of opium, given in the form of enemata, is generally the best. The laudanum answers very well in common; but we have known the rectum so much inflamed, and so completely deprived of its natural and protecting mucus, as to be unable to bear the stimulus of the alcohol contained in it. In this case the watery solution answers extremely well. From three to six grains of opium, as the patient may require, must be dissolved, or well rubbed with

* R. Sulph. magnesia	3j.	Take Epsom salts	1 ounce.
Tartrite antim.	gr. j.	Tartar emetic	1 grain.
Manna opt.	3j.	Flake manna	1 ounce.
Succ. lemon.	3ss.	Lemon juice	½ ounce.
Aq. fervent.	3vij.	Hot water	8 ounces.
f. sol. et colat.		Make a solution, and strain.	

A table-spoonful every hour or two, until it procure stools.

two or three table-spoonfuls of hot water, and then strained through a cloth; to this, an equal quantity of rich mucilage of gum Arabic, flaxseed tea, arrow root, or starch, must be added, and given at bed-time as an enema. Should laudanum be found to answer, a tea-spoonful may be administered in the same way. Should it be returned quickly, and without abating the irritation, it may be repeated in half an hour or an hour. Mercury to salivation is highly recommended by Dr. Johnson. It may be given both by the mouth, and by the skin. After due depletion in tropical climates especially, he gives scruple doses of calomel two or three times a day until it produce ptyalism. In using calomel, he insists on the quantity named—as either a lesser or greater quantity, offends the stomach and irritates the bowels.

2000. Sometimes, the enemata are rejected almost as fast as given, without affording the slightest relief; when this happens, we have found, that by giving the laudanum with a solution of the acetate of lead, that they would be retained better. The solution may be made by dissolving ten grains of the acetate, in a common-sized wine-glassful of water; to this the laudanum must be added, and given as an enema. We have occasionally found a small suppository, of six or eight grains of the solid opium, to answer extremely well.

2001. It must however be borne in mind, that opium is not to be used in any form, until the pulse be sufficiently reduced to bear it—that is, the same rule must be observed, as in any other inflammatory febrile affection. The plan, then, of treatment, consists in the due abstraction of blood, so long as pain continues, and the pulse will bear it; in gently moving the bowels by laxatives, and relieving pain by opium. Advantage is sometimes found in warm applications to the bowels—as flannels wrung out of warm water, brandy, or whiskey. We have occasionally witnessed relief, from having the abdomen bathed with the spirit of turpentine.

2002. We cannot guard with too much care, the diet and drinks of the patient; they should be the same as in enteritis; for there is no disease in which errors of diet incur a severer penalty; nor none, in which so much mischievous vulgar error prevails; in proof of this, we need only mention the almost universal administration of "*mutton broth*;" this pernicious substance is in almost universal use among those who attempt to treat the disease themselves; and it is too frequently admitted as an article of diet, by some medical men.

2003. Blisters to the abdomen have been highly recommended by some—our own experience is against their application to this part—we have found advantage from their application to the

inside of the thighs, when tenesmus has been very severe; and after the proper reduction of the pulse.

2004. After fecal stools are procured with facility, the danger for the most part is over, or certainly very much diminished; but when these cannot be provoked, the danger augments, and gangrene, with all its horrors, is certainly impending—but beware how you stimulate—for in no case is it more true, that we must not stimulate, because we cannot deplete, than in dysentery. In this condition of things, we must mainly rely upon the restorative powers of the system; avoiding at the same time most carefully, every thing like active treatment, as it would certainly interfere with this power.

2005. The chronic form of this disease permits but little beyond a pro re nata treatment—keeping the bowels free by mild laxatives, and a mild vegetable, or mucilaginous diet; the shunning of all stimulating drinks or medicines; and the occasional and judicious use of opium, will perhaps comprise every thing advantageous in our power. If fever of any particular type complicate dysentery, it must be treated agreeably to its character—at least as far as the state of the bowels will permit the appropriate treatment.

Convalescence.

2006. A patient escaping from dysentery, cannot be too careful about his clothing; this should consist of materials rather warmer than is necessary for health; but above all, he should not fail to wear flannel next his skin. It is idle for him to rebel against this direction, by saying he “never wore flannel in his life”—there never was before a necessity perhaps for it; or if there had been, and he neglected it, he should not compound for one error, by pleading the commission of another. He should be particularly careful in his diet; he should neither eat to satiety of even proper food, nor take such as is improper in itself; as stimulating animal substances, or broths, or liquor of any kind. For it is easy to overtax the stomach, and supply more material to the sanguiferous system, than the exigencies of the system require. He should be careful not to overheat himself, or have perspiration suddenly checked; he should avoid all damp places, and never permit his feet to remain cold—a change of air may be highly important, especially if he cannot enjoy proper, and well-directed exercise at home.

2007. Exercise must be looked upon like any other remedy—it may be improper in quality, and excessive in quantity. It should be performed in the open air, in dry and properly selected weather; and its degree should never exceed the quantity of

strength the patient may have to spare—for if it do, it then amounts to fatigue, and fatigue is injurious.

SECT. V.—ENTERITIS.*

2008. By enteritis we are to understand an inflammation of *the internal coat of the intestines*. We have emphasized the “internal coat of the intestines,” as Good and Gregory, two of the latest British writers on practical medicine, seem to have confounded peritonitis with enteritis; a mistake of great pathological and therapeutical consequence. The first seems to be at no pains to ascertain, whether the inflammation, which he admits to be present, is situated in the serous or mucous coat of the intestines.† It is true he makes two varieties; one, “adhesive inflammation of the bowels;” and the other, “erythematic inflammation of the bowels;” but locates neither, with any certainty. In describing these species, he says of the first, “pain very acute, fever violent; vomiting frequent, and costiveness obstinate;” of the second, “pain more moderate, fever less violent, little vomiting, and diarrhoea instead of costiveness.” In neither of these characters, nor in his specific definition of enteritis, does he point out the seat of the disease, nor indicate the tissue involved in the inflammation. Indeed, this appears to be a matter of indifference; since he founds no therapeutical views upon his varieties, though he insinuates, that his first, may be seated in the mucous membrane, by saying, that “it has been well ascertained, that the seat of the erythematic is *sometimes* in the external coat of the intestines; and *it is said* by some writers, that this is the most common seat.”‡

2009. From this it would appear, that Dr. Good had either not made up his mind upon the seats of the varieties of enteritis, or that he thought it a matter of no consequence to do so. At this we are not a little surprised; a man of his great erudition and research, could not have been ignorant of the important distinctions made by Bichat of the inflammations of the several tissues composing the body, or have been indifferent to them, after having made himself master of them; especially, as he is

* We have said nothing of gastritis, thinking the observations on yellow fever, (which is only a high grade of this affection, and usually in an epidemic form,) would be every way sufficient, and to which we beg leave to refer.

† Dr. Armstrong says, “inflammation of the serous membrane of the stomach only occurs now and then, and is mostly conjoined with mucous inflammation of that viscus; whereas inflammation of the serous membrane of the bowels is very frequent in this country, (England,) and is in the majority of cases, unconnected with the inflammation of the mucous texture.”—*Morbid Anatomy of the Bowels, &c.* p. 72.

‡ Vol. II. p. 256, Am. Ed.

not only a practical, but confessedly, a systematic writer. Gregory is less equivocal, but not less faulty in his definition of enteritis, as he locates the inflammation on the external coat; thus confounding peritoneal inflammation with inflammation of the mucous membrane of the intestines; a mistake, in our estimation, of great practical importance. For we have endeavoured to prove under the head of "peritonitis," that the peritoneum may be inflamed, even to the destruction of life, without necessarily implicating the tissue beneath it.

2010. It would appear from the observations of Dr. Armstrong, that the serous membrane may be inflamed, without implicating the mucous, as has been observed in peritonitis. But Dr. A. does not call this condition of the serous membrane peritonitis, except it assume the chronic form. We fear there is more refinement than practical utility in this distinction, and especially as the symptomatology is very much the same, and the treatment perhaps entirely so. But as we have much confidence in Dr. A. as an accurate observer, and as a faithful detailer of facts, we think it best to let him speak for himself—we shall therefore quote his own description of the complaint, which he terms "sero-enteritis;" that is, an inflammation of the peritoneal, or serous covering of the intestine.

2011. "In acute sero-enteritis, fairly established, there is considerable fever. The skin is every where hotter than natural; often dry about the trunk, and at the same time moist in some of the extreme parts of the body, but especially about the palms of the hands and the forehead. The pulse is very quick, ranging generally from 120 to 130 in the minute; it is always very small, as if not only the heart, but the artery at the wrist has contracted upon itself; yet, if it be accurately examined, it will be found, during the stage of excitement, firmer than natural, almost feeling then like a small whip-cord or harp-string. The tongue is covered with a whitish fur, and there is excessive thirst. The breathing is hurried and anxious, and yet the respiration seems to be carried on by the diaphragm and intercostals, the abdominal muscles acting less than in the healthy state. The integuments of the belly lose their natural softness and pliability, and are hard and irregular to the touch. There is a concentration of heat over the inflamed region of serous membrane, and both pain and tenderness are complained of there, particularly under pressure, during the continuance of which the patient winces—changes the expression of his face from an increase of pain. The bowels are obstinately constipated, an effect of the inflammation of the serous membrane, which is unfortunately too often treated as the cause of the inflammation. The abdomen is tense and distended, chiefly from the generation of flatus within, of which the

patient usually complains much. If nausea or vomiting should not occur in the commencement of the attack, they are almost sure to be its attendants during the progress of the inflammation, and are generally the most urgent in the worst cases. The patient almost always lies upon his back with his legs drawn upwards, as if instinctively to relax the abdominal muscles, and he is cautious in moving the lower extremities, lest he should increase the pain, while he mostly moves the upper more frequently than natural; and in bad cases often dashes down the hand, or lets it abruptly fall upon the bed-clothes. The urine is scanty and high-coloured, as it is in almost all serous inflammations." Dr. A. makes two stages of this disease. One of exalted action or excitement, and the other of collapse—the first is usually preceded by rigour or chilliness, which is followed by much heat or excitement. He says, "in the stage of excitement, the skin is uniformly hotter than natural, except in those parts which are moist, and exposed to the air, and then the evaporation makes them rather cool, a circumstance which should be remembered, because I have known hasty observers conclude from it alone, that the fatal stage of collapse was at hand, when in reality it was very far distant. During the stage of excitement, too, the pulse, though smaller, is always more resisting than natural; the respiration is not embarrassed, but merely quick and anxious; the countenance has not a sunken character, and the patient continues to complain of the abdominal pain.

2012. "Whereas in the stage of collapse, the heat fails every where, first on the extremities, and then upon the trunk, the skin becoming of a clayey coldness and dampness at last, while the fingers and hands are generally mottled by a dun sort of redness here and there. The pulse becomes quicker, smaller, and is now really weak, feeling like a soft undulating line. The respiration is embarrassed even to exhaustion; the whole muscular power is prostrate; the face is sunk, and especially hollow round the orbits; the abdomen grows more and more tumid and tense, while the pain mostly lessens, or sometimes entirely leaves the patient; and lastly, a sort of passive gulping generally takes place, the contents of the stomach being apparently forced up the œsophagus by the pressure of the intestines, which are then for the most part enormously distended by flatus. In this state, the patient sinks almost always with a collected mind in common sero-enteritis, and sometimes even speaks confidently of recovery, when all hopes have been extinguished in the practitioner."*—*Morbid Anatomy*, &c. p. 93.

2013. In this history we must repeat, that we see nothing but

* See Yellow Fever.

H

many physicians have
mistaken inflammation of the
stomach for Strangulated gut

a case of peritoneal inflammation, modified perhaps by sex and the influence of the remote causes. And we cannot fail to remark here, the great similarity in the state of the mind in sero-enteritis, and that form of gastritis called yellow fever.

2014. But notwithstanding the obvious similarity in the tissue affected in peritonitis and sero-enteritis, Dr. A. contends that the former term is vaguely used, and that there is really a difference between these two affections. Dr. A. observes, "when acute peritonitis, as above explained, occurs, (namely, the portion of this membrane confined to the abdominal parietes,) it may be distinguished from acute sero-enteritis, by the following symptoms; namely, in acute peritonitis the pain is diffused over the whole belly; whereas in sero-peritonitis it is mostly limited to some particular part of that region. In acute peritonitis the skin is not only hotter, but the pulse is more expanded than in acute sero-enteritis. Finally, nausea, retching, and vomiting, are far more apt to appear at an early stage of acute sero-enteritis, than of acute peritonitis. If any case should take place, in which the pain and tenderness are universally diffused over the belly from the beginning, in which the pulse is small as well as hard, and in which vomiting has been a prominent sign from the onset, it may be concluded, either that a very large portion of the serous membrane of the bowels is inflamed, or that a less portion is inflamed conjointly with a considerable one of the peritoneum lining the abdominal muscles." p. 95.

2015. Notwithstanding the apparent accuracy of these distinctions, we are warranted from experience to declare, that none of the enumerated signs are unequivocal proofs of the conditions detailed by Dr. A. We have lately seen a remarkable illustration of the truth of this remark. A lady with a first child, complained on the third day after delivery of considerable tenderness of the abdomen immediately over the uterine region, for which leeches were applied, and purging instituted; the pulse was frequent, but not tense; the skin was only moderately warm; there was neither nausea nor vomiting. After the application of the leeches, we were assured by her physician there was no tenderness, or painful sensation upon pressure in any portion of the abdomen. She died, however, on the seventh day. Leave, at our suggestion, was obtained to inspect the body, which was done eighteen hours after death. The abdomen was not much swollen; within its cavity, there was a considerable quantity of effused serum, and large portions of coagulated lymph floating in the fluid as well as attached to the abdominal parietes, and nearly over the whole of the intestinal surface, together with several pretty firm adhesions of the bowels with each other.

2016. Now in this case, there was an absence of all the lead-

ing diagnostic signs laid down by Dr. A. and the presence of one or two, which militate against his distinctions. First, there was universal peritoneal inflammation, agreeably to his definition of peritonitis, with local and limited tenderness. Second, there was neither nausea nor vomiting, though there was general "sero-enteritic" inflammation.

2017. Enteritis, like almost all the other phlegmasiæ, may be divided into the acute and chronic.*

Causes of Acute Enteritis.

2018. The intestinal canal, like any other portion of the body, may become the seat of inflammation, from any of the general causes capable of producing this condition of a part. But besides these, it may have others, which act directly upon it. Such may be poisons, or other acrid substances; the employment, and over-doses of acrid cathartic medicines, as scammony, colocynth, elaterium, gamboge, &c.; highly stimulating potions, as the too free use of alcoholic liquors; mechanical irritations from foreign bodies; great accumulation of hardened fæces; worms; too sudden application of cold, when the body is heated, either to the intestinal surface, or to that of the skin; suppression of accustomed evacuations; repelled eruptions; lying on damp ground, or in damp beds, &c. &c.

Symptoms.

2019. This complaint is sometimes ushered in by a chill of more or less violence; at other times no coldness is perceived; pain in the abdomen of an extremely acute kind, and without any or with very little abatement; this either limits itself to a point, or it is spread over the whole abdominal surface. The belly becomes swelled, and so sensible, that it can bear with difficulty the slightest touch, not even the weight of the bed-clothes. Sometimes a sensation of heat is observed in a particular portion of the abdomen; a sensation of twisting is felt about the umbilicus; the patient finds most comfort by lying on his back, and always experiences pain in every attempt to move his position; sometimes he feels momentary relief from lying on his belly; and with a hope of obtaining some abatement of pain from change of posture, he is almost constantly tossing himself to and fro, without finding the relief he had hoped for, and he so much needs, and at the same time subjecting himself to fresh torture, by each change of position.

* See Peritonitis.

2020. Sometimes the inflammation is confined to one of the intestines, or even to a portion of one; in this case, the inflamed part usually becomes distended, and an elastic tumour of the shape of the intestine may be seen or felt through the abdominal parietes. Costiveness, nausea, vomiting of porraceous matter, or diarrhœa, now succeed. If diarrhœa supervene, the character of the discharges may vary frequently during the course of the disease; sometimes they will consist of a white or gray mucus; sometimes serous, bloody, yellow, or green, and the discharge is sure almost to be accompanied by a discharge of flatus, cutting pains, or tenesmus.

2021. The fever generally augments for some time, or at least suffers no abatement; insupportable thirst, with dryness of mouth and a bitter taste; disgust for food; breathing hurried; anxiety; watchfulness; pulse small and irregular; head-ache; giddiness; stupor; delirium; hiccup; cold extremities; burning abdomen; involuntary and frequent stools of highly offensive odour, putrid, cadaverous; but little urine, and that high-coloured and rendered with pain, sometimes an entire suppression. In all cases the strength fails rapidly, and the patient soon arrives at a hopeless stage; or a favourable change may unexpectedly manifest itself, or it may slowly degenerate into a chronic form. This disease runs its course rapidly, either for a fortunate or for a fatal issue—its duration rarely exceeds two weeks; it frequently terminates in one, or even in a shorter time.

2022. As topical means are highly important in this disease, it is of considerable practical importance to determine as nearly as possible the seat of the inflammation, that remedies may be applied with a greater chance of success. This is sometimes very much in our power; for by tracing the symptoms to the pathological appearances revealed by dissections, it has been found that different phenomena present themselves, as it may be the great or small intestines that are implicated in the inflammation; thus when the mucous membrane of the great intestines is the seat, we find frequent and copious dejections, with distressing tenesmus; when it is the small, we have great nausea and severe vomitings, with a more obstinate constipation.

2023. It may also be well to observe, that the vomiting becomes more frequent and obstinate, as the inflammation may approach the stomach itself; for the intensity of its sympathy with the mucous membrane, is augmented by proximity. A hepatitis may be simulated, when the colon is the phlogosed part; if the rectum be the seat of the disease, hæmorrhoids may ensue with a permanent tenesmus, and perhaps strangury.*

* Renauldin, Dict. des Scien. Med. Art. Enterite.

2024. Though it is satisfactorily proved, that the tissue covering a part may be exclusively the seat of inflammation, yet it does not follow, that it shall be limited to it under all circumstances—hence, we sometimes find the several structures composing a part, successively involved; thus the mucous membrane of an intestine may be the original seat of inflammation; yet this inflammation may be transmitted to the serous membrane, and then a complication of enteritis and peritonitis may thus be formed; or this may be reversed. Again, when the peritoneum becomes inflamed in consequence of its contiguity or sympathy, with the mucous membrane in enteritis, it may communicate its condition to other portions of itself, and by this means involve the viscera which it covers—hence, any of the abdominal viscera may indirectly become affected.

2025. Experience has fully confirmed these observations; it therefore becomes sometimes a matter of consequence to determine the precise or original seat of the disease, that one affection may not be mistaken for another. Thus, the colon being inflamed may give rise to symptoms similar to hepatitis; as there may be pain and soreness in the right side; but it should be recollected that in this disease, there are many other symptoms necessary to constitute hepatitis. That in gastritis, it is the region of the stomach that is painful; vomiting solids and fluids immediately after having been swallowed, &c. In a word, there should be all the usual symptoms which belong to the imposed or secondary disease; and if these be not present, and the signs belonging to enteritis are, we have then the stronger reason to suppose it to be this disease.

2026. We have already remarked that enteritis generally ran its course with considerable rapidity, especially when it was about to terminate either favourably or fatally. That the first may take place, it requires that the parts affected shall not have received a shock so severe, as to be beyond the recuperative powers of the system, when aided by the best adapted means. To protect the one, and to secure the other, timely and well-proportioned means must be employed; and when a cure is effected, it is by a resolution of the inflammation; if this be perfect, health will be restored; if it be not, the patient may experience for a long time a number of inconveniences of greater or less magnitude; such as an obstinate costiveness, or an habitual diarrhoea; swelling of the belly, flatulency, and a persevering debility.

2027. When death takes place, it is most commonly by gangrene—this termination is usually preceded by a number of well-marked and not easily to be mistaken symptoms. Pain ceases suddenly, however violent it may have been previously; the extremities become cold, and the wrists especially; cold

sweat; hiccup; vomiting of dark matter; convulsions sometimes, and death. Renauldin says, cures have taken place even after the gangrene of a portion of the intestine.

2028. There is a third termination of enteritis; its becoming chronic by the abatement of the inflammation, but not by its entire extinction. This only takes place however where the inflammation has successively passed through the several tissues which compose the intestines, and the peritoneal or serous coat throwing out coagulable lymph, and thus producing adhesions with each other by the formation of a false membrane. Or ulceration may take place, and thus form a communication between the bowel and abdomen.

2029. When enteritis is about to become chronic, a slow fever commences; it is preceded by frequent and slight chills, which are always succeeded by heat and dry skin, which generally augment towards evening. The pulse is frequent and small; there is almost always a dull pain in the abdomen, &c. together with all the symptoms almost laid down for chronic peritonitis, which see, page 557.

2030. Examinations after death, distinctly locate the disease, and also declare its nature. The mucous membrane is found to be its seat, by being inflamed, and very red in consequence of the increased size of the sanguineous capillaries which enter into its structure. Sometimes patches of extravasated blood; and sometimes the peritoneal coat is also found involved, especially when the mucous membrane is highly inflamed; in this case, we find layers of coagulable lymph spread upon this membrane. The intestine is generally found thickened, and very black, in consequence of the extravasation of venous blood, which is sometimes mistaken for a gangrene of the part. Gangrene, which also happens, as we have said, (par. 2027,) may be distinguished from this extravasation, by the lividity of its colour, and the facility with which its continuity is destroyed. When gangrene has produced openings into the abdomen, we find a quantity of fæcal matter within this cavity, which distinctly points out the nature of the communication between these two parts.

2031. In making up our minds upon the probable event of acute enteritis, we must constantly keep in view the nature of the causes which have produced it; regarding poisons, acrid substances, intus-susception, and strangulated hernia, as the most dangerous causes; and consequently the termination of the disease that either may have produced, is less frequently favourable than from other causes. If the disease be secondary, or metastatic, the prognosis may be more favourable, as the disease with which the intestine has sympathized, may be capable of cure, and thus relieve the other.

2032. The violence, or moderation of the symptoms, will also enable us to form an estimate of the danger; for in proportion to the intensity of these, will be the risk. A diarrhœa is more favourable than constipation; especially if vomiting accompany the latter; for the former may be looked upon, if not too severe, as rather useful; and not absolutely bad if the stools be even bloody. Enteritis is more manageable when it confines itself to the mucous membrane of the large intestines, than when the inflammation occupies the small intestines, and involves their external or peritoneal coat.

2033. The cessation of pain without adequate cause; or the abatement of symptoms; the smallness and inequality of the pulse; cold sweats; sharp, acrid, thin, black stools; or discharging them involuntarily; great swelling of the abdomen; hiccup; dry tongue; delirium; loss of vision; fainting, &c. must be looked upon almost necessarily as fatal symptoms. While, on the contrary, we may regard a diminution of the pains, both in frequency and violence; sinking of the tumefaction of the abdomen in a gradual and regular manner; stools becoming less frequent, and less fetid; increase of urine; thirst lessening; and strength rather renewing; as favourable, and promising a happy issue.

Treatment.

2034. The treatment of enteritis should consist in attempts to remove inflammation, and assuage pain.

2035. The first is to be done by the free abstraction of blood from the arm; nor need we be sparing, as it is the only means by which we can make an impression upon the disease. We cannot declare in round numbers the quantity to be abstracted; it must be permitted to flow until a sensible alteration takes place in the pulse—that is, until its force is so much abated, as to seem to flutter under the finger. This in certain constitutions happens very soon; but rather from idiosyncrasy, than from the absolute effects of the bleeding independently of this peculiarity, and before it would seem that the quantity drawn can have effected a favourable change in the inflamed part. If this be so, we should stop the bleeding, and permit the patient to recover himself, before we repeat this operation; for in such constitutions we have constantly observed, that the same advantages were obtained from this approach to syncope, as if this condition were the result of a large quantity of blood—therefore, we are not to be regulated by the measurement of the blood, but by the effects its abstraction may have upon the circulating system.

2036. We must, however, in either case again have recourse to the lancet so soon as the system again reacts, if pain be not

moderated, or if it shall again become severe. In inflammations of the bowels, the continuance of pain seems to be a better direction for the further loss of blood, than the pulse; and this is true, whichever tissue may be diseased; we have very constantly acted upon this principle for the last forty years. For we were very early taught the value of this rule, by being placed in a neighbourhood where dysentery was sure to be rife every autumn; and where we saw for several years consecutively, at least five hundred patients annually in this complaint.

2037. We were directed to this mode of practice, first, from the pathology of the disease; second, from finding it almost the only remedy that afforded relief; and third, from observing that many died, when this remedy was not sufficiently used. For it should be constantly kept in mind, that there is no portion perhaps of the system, that sustains violent inflammation so ill, or that succumbs so speedily under it, as the alimentary canal.

2038. In aid of the general bleeding, we should direct the most determined antiphlogistic regimen—all food should be prohibited; and nothing but the most bland articles of drink should be employed—these should consist of barley water, rice water, gum water, weak slippery-elm bark tea, toast tea, or flaxseed tea. We are aware that the friends of the patient often become clamorous for food upon such occasions; but a deaf ear should be turned to every importunity; for compliance, is but sealing the fate of the patient. Ice water, and ice itself are often found highly grateful, as well as decidedly useful; especially where there is vomiting or much nausea; for thirst can be gratified by a very small bulk of fluid, without incurring the risk, that filling the stomach constantly exposes the patient to—for it should be an invariable rule, where the symptoms just named are present, not to put much of any thing into the stomach.

2039. The bowels should be opened, by small and repeated doses of castor oil, or by either of the neutral salts, in divided portions; these may be aided by injections of any of the mucilaginous teas; depending upon their bulk, rather than upon their stimulus for their operation. If diarrhœa attend, it is found useful to give the castor oil as suggested above, unless the stools are watery and acrid, and their discharge attended by much effort, and flatulency. In this case the mild injections in small quantities may be exhibited every two or three hours with advantage—thin starch or arrow root, answer extremely well for this purpose. Though we have directed gentle purging, from a conviction of its usefulness, we nevertheless condemn in the strongest terms, active purging; especially when produced by the more active and acrid of the cathartics—we therefore unhesitatingly disapprove of this part of the treatment of enteritis, as laid down

by Dr. Good. The French condemn this practice altogether, at this moment—at least such as belong to the physiological school; this we look upon as ultra-theory, as well as ultra-practice, and is perhaps, as reprehensible as the purging plan.

2040. In this entire proscription of cathartics, it seems to be lost sight of, that as powerful an irritant is left within the bowels, if it be not carried off by the employment of laxatives; and that this acrid mass accumulates in proportion to the tardiness of the bowels. We look upon several of the affections of the alimentary canal, as having their origin in the inflammation or irritation of its mucous membrane, (or its follicles,) as diarrhœa, cholera, and dysentery, and in the treatment of which, almost all experience is in favour of mild cathartics, or the more simple laxatives—who has not seen diarrhœa put a stop to, by a single dose of castor oil; cholera suspended by a few minute doses of calomel; and dysentery arrested, by a repetition of the milder eccoprotics? If this be true, what have we to fear from the judicious selection, or the proper use of, these remedies in enteritis?

2041. Leeching in this disease, is a powerful auxiliary; and should be resorted to, again and again, if pain continue; the part of the abdomen to which they are to be applied, must be directed in some measure by the pain itself—choosing such places in which it is most intense, in preference to a more diffused application of them. Their bites may be encouraged to bleed by the application of a piece of fine flannel, wrung out of warm flaxseed tea, to the punctured surface.

2042. When hæmorrhoids attend, or it is the large intestines that are inflamed, the French practitioners recommend in very high terms the application of leeches to the anus—from our own experience, we can say but little of their efficacy when used to this part; as we have not been able to get the patient to submit to it but in one instance; in this case it appeared to be very useful.

2043. We have thought that much comfort and advantage has been derived from the occasional use of the warm bath when the weather has been warm—when cold, we have feared to recommend it, lest the process should not be conducted with a caution sufficient to protect the patient against injury from its employment.

2044. Opium should be entirely forbidden during the active stage of enteritis—we fear much mischief has been done by an unguarded use of this drug; attempting by it to overcome a pain, that can only be relieved by the lancet. But after due depletion has been performed, it may be had recourse to with advantage in the form of an enema—we direct a gill of flaxseed tea, or thin starch, and from forty to sixty drops of laudanum to be

administered at bed-time, or even during the day, if the pain be great, the pulse sufficiently reduced, and the bowels open.

2045. Of the treatment of chronic enteritis we can say nothing that is encouraging—a *pro re nata* treatment is all that can be resorted to; namely, the occasional use of opium; keeping the bowels open by the gentlest means; diluent and mucilaginous drinks; a well-regulated diet, suited to the digestive powers of the stomach, or its peculiarities, and the total disuse of all ardent, or fermented liquors, is the sum of our means we believe, in this almost always fatal disease.

2046. We have said nothing of blisters in our history of the treatment of enteritis—we omitted them, because we have never been satisfied of their utility in any instance; and our impression decidedly is, that they are hurtful in every active inflammation of the membranous tissues of the abdominal viscera. *

SECT. VI.—COLIC.

2047. A good deal of latitude is given to this word; it is made to signify almost any acute pain in the abdomen or intestinal canal, especially if it observe alternate increase and diminution. It is true, that each variety of this affection, be its seat or its cause ever so different, has something in common with the rest. Hence all who may be afflicted with this complaint, experience pain of greater or less severity, or of longer or shorter duration, about the navel. The character of the pain however, differs a little as its remote cause may differ; one patient may represent it as a twisting sensation in the bowels; while another will describe it as a sensation from distention. Wind is heard to pass from one portion of the intestines to another; the patient tosses himself about from place to place; sometimes he anxiously solicits pressure upon the abdomen, at other times he cannot bear the slightest touch. Sensations of cold are experienced in various parts of the body; but especially the feet and legs. If the disease be violent, the pulse is small, slow, or unusually frequent, or extinct; in this case, the face is pale, the features shrunk, and the whole body covered with cold sweat. The bowels are almost always costive; though occasionally there may be diarrhoea; nausea almost always attends, frequent belchings of wind, of various tastes, and sometimes vomiting.

2048. The symptoms just detailed, are for the most part common to all colics; yet each variety seems to have its own characters, though they are not always so strongly marked as to remove all doubt for which variety we are obliged to prescribe. The embarrassment created by this, is not however always of great consequence, as a general mode of treatment is necessary, be the

cause of the variety what it may. We shall however for the better understanding of the nature of each, divide them into, 1, the crapulous or flatulent colic; 2, the bilious colic; 3, the ileus, or dry belly-ache; 4, the painter's, colic or the colic arising from lead.

I. *Crapulous, or Flatulent Colic.*

2049. This colic most frequently arises from either too much food being taken into the stomach at one time, and thus producing indigestion; or the quality of the food may not be suitable to the condition of the stomach. In both instances, there may be a great extrication of gas; so much so sometimes, as to distend the stomach and bowels enormously, and to create not only the severest sufferings, but also the most alarming symptoms. The causes of colic in these instances, are sufficiently palpable, and may always be detected by proper inquiry into the nature and the quantity of the substances taken into the stomach; but occasionally we have seen this colic produced without any fault in either the quantity or quality of the ingesta. This appears to arise from some condition of the nervous system, as it is almost always preceded by some moral cause, of a distressing or vexatious kind.

2050. This last form of flatulent colic, we have seen take place in the course of a few minutes, and be attended by a suite of the most alarming symptoms; the stomach and bowels have been violently distended; creating the most intense suffering, and exciting the most just apprehensions. We attended a lady, for many years, who was subject to this kind of colic; in her it was always produced from her mind having been disturbed in one way or other previously. In this case the symptoms were so violent sometimes as to threaten immediate death—we have seen her cold as marble, pulse extinct, and drenched with ice-cold sweat. She was however almost always relieved by the same remedies—namely, a large warm sinapism to the stomach, which was suffered to produce considerable irritation; one to each leg, and a tea-spoonful of Hoffman's anodyne liquor, repeated once in twenty minutes or half an hour, until gas began to escape from the mouth; and this would take place when the spell was about to terminate, in surprising torrents, until the stomach appeared quite empty and relieved. But it required several such discharges before the paroxysm would cease, for one *secretion* and discharge of gas, (for such it appeared to be,) would follow another, for two or three hours together. When this affection was more than usually obstinate, much advantage was derived from an enema of a pint of water, three tea-spoonfuls of

the tincture of asafœtida, and as much of the spirit of turpentine; this was sure to procure an immediate discharge from the bowels of flatus and fæces.

Diagnosis.

2051. This affection cannot well be confounded with any other, as its remote causes are almost always obvious—it is unlike enteritis, with which alone it can be confounded, as it is almost always unattended by pyrexia; by the pain being more severe at one moment than at another; by his being disposed to lie upon his belly, or even able to bear pressure, and by the frequent discharges of gas from the mouth by belchings.

Prognosis.

2052. This disease rarely fails to terminate favourably, if the patient be of a good constitution. But if the stomach be frequently disturbed by indigestion, or its powers weakened by over-stimulation, it may prove fatal, by inducing chronic inflammation. Death it is said has followed the sudden and excessive distention of the stomach, as has paralysis.

Treatment.

2053. For the most part, this disease is of easy management, requiring but little more than a free evacuation from the bowels by castor oil; with fifteen or twenty drops of the essence of peppermint, or a tea-spoonful of Hoffman's anodyne liquor, given two or three times if the pain persist. But sometimes, the stomach requires immediate relief, by discharging the offending cause—when produced by over-eating, or from large quantities of crude substances, or unripe fruit, a few grains of ipecacuanha so as to cause puking, will instantly afford relief; especially, if this be followed by a dose of laudanum, either by the mouth, or by enema.

II. *Bilious Colic.*

2054. This affection is at first perhaps seated in the liver itself, as it is always preceded by symptoms, which if they do not distinctly declare an affection of this organ to be the cause, yet show some unusual one to be operating. It commonly shows itself during the prevalence of autumnal complaints, as bilious fever, diarrhœa, cholera, &c. If the liver itself is primarily affected, and that it is, is rendered probable by the season of the

year at which this colic appears, and the frequency of other diseases, in which this viscus is involved, it is presumable, that the bile itself, has been secreted not only in an acrid, or otherwise unhealthy condition, but in very much too large a quantity. Now if either of these conditions obtain, the intestines may be thrown into spasm, and thus produce the colic in question.

Symptoms.

2055. Several of the symptoms which mark the commencement of this colic, are precisely those which usher in fever in the autumnal months. Such as head-ache, nausea, vomiting of bile, and a disagreeable or bitter taste in the mouth; but instead of being followed by a distinctly marked fever, the bowels show signs of being unduly stimulated, or irritated by the presence of some offending cause. Gripping pains are felt throughout the belly, a sense of fulness or of distention, costiveness, or tenesmus, with very imperfect evacuations. Should these symptoms be neglected, or not be removed by the remedies administered, fever of greater or less force is pretty sure to follow, and this attended by much head-ache, thirst, lassitude, and pain upon any motion that will exercise the abdomen. The tongue is foul, the pulse commonly not much accelerated.

2056. We have occasionally seen a well-marked fever, with considerable tenderness of the epigastrium or abdomen, attend this form of colic. When this takes place however, the circulation is rarely equal; for the feet and legs are sure almost to be cold, while the head is very hot, and the face even flushed.

Treatment.

2057. There are few diseases, that have so many certain cures, or popular remedies as colic; most of which are of a highly stimulating kind, and which are administered with a most liberal hand, no matter how improper or preposterous they may be. There are few evils arising out of vulgar errors, that so loudly call for redress, as the domestic treatment of colic—we are certain we have seen it cause death in more instances than one. The vulgar should be taught to look upon this disease as one of much danger, and always requiring nicety of management; and that the administration of a single improper remedy, may convert a disease of comparative simplicity, into one of complication, and eventual danger.

2058. The indications of this colic must be derived from the state of the pulse, and the condition of the bowels. Should the pulse be active, and other signs of arterial excitement be present,

the patient should lose blood in proportion to the powers of the system, and the force of the disease. If there be tenderness in the epigastrium, a foul tongue with red edges, if there be nausea or much head-ache, the patient should lose blood immediately, either by the arm, or from leeches over the region of the stomach, though the pulse be not very active.

2059. If the bowels be costive, care should be taken to remove it as speedily as possible; 1, by cathartics; 2, by enemata; 3, by blood-letting; 4, by warm bath.

1. *Cathartics.*

2060. Cathartics should never precede blood-letting, when the latter is required, if it be practicable to command it on the instant. But should this operation not be indicated, they should be given forthwith. As we believe the liver to be always more or less implicated in bilious colic, we have thought much advantage has been derived by first giving a few grains of calomel, (six or eight,) letting it be followed by some milder purgative, as castor oil, or magnesia and Epsom salt. Indeed, we may even find a few grains of jalap, (twenty,) a very proper auxiliary to the calomel. But where the stomach will bear the castor oil, it is decidedly the best remedy to follow the calomel. Much mischief is often done in colic, by giving large doses of medicine at a time, or from a false notion that the very active or even drastic purgatives are required. Our rule constantly is, to give small doses of the milder cathartics, and repeat them at moderate intervals, (once an hour,) until the effect is produced. Should the stomach be so much exasperated as to reject every thing that is offered, we should not increase its irritability, by presenting offensive articles to it; but a brisk injection should be given immediately. In such cases we should give nothing for a time but two or three grain doses of calomel, once an hour, until twelve or fifteen grains be given—we should then desist, and have recourse to,

2. *Enemata.*

2061. These should be made, at first, pretty stimulating; a pint of warm water, and a table-spoonful of table salt, may be given with great and speedy advantage. Should the first fail, a second should be thrown up the rectum, in fifteen or twenty minutes, but made less stimulating. Should these not prove efficient, another may be administered, of simple flaxseed tea, followed by a second or a third. Should these remedies be unsuccessful, and patient continue to puke, leeches or cups should be

applied to the epigastrium, provided it is thought inadvisable to draw blood from the arm, which by the by rarely happens. It is worse than idle, it is positively cruel, to urge the patient to swallow medicine while his stomach revolts at the very name of it. The sickness may however be appeased very often in such cases, by the following mixture, provided there is no suspicion of inflammation:—

R. Bis-carbon. sodæ	-	ʒiiss.	Take Bi-carbonate of	
Pulv. g. Arab.	-	ʒij.	soda	- 1½ drachm.
Ol. menthæ	-	gut. iv.	Powdered gum	
Sacch. alb.	-	ʒij.	Arabic	- 2 drachms.
Aq. Seltzer vel font.	-	ʒiv.	Oil of mint	- 4 drops.
M.			Sugar	- 2 drachms.
			Seltzer, or com-	
			mon water	- 4 ounces.
			Mix.	

Of this a table-spoonful may be taken every half hour, until better.

3. *Blood-letting.*

2062. Sometimes in these cases, nothing but the abstraction of blood will reconcile the stomach, and this may be done as above directed, by either the lancet, cups, or leeches; and where there is a necessity for this, the above mixture should not be given until this has been done—then, if the puking persist, it may be given. Indeed, the loss of blood becomes indispensable, whenever the constipation is obstinate, the stomach irritable, the tongue red and dry, and the urine high-coloured and scanty; for inflammation is about to take place, or has already done so. After these remedies have been faithfully tried, we must have recourse to the,

4. *Warm Bath.*

2063. This very popular remedy is often very much abused, by its indiscriminate employment. The warm bath, like blistering, opium, and sweating, has its point of efficacy. For if it be too early employed, it is altogether inadequate to the end in view; and if left too late it is sure to do mischief, by calling the blood to the capillaries of the surface, at a time the internal and larger vessels cannot spare it. The proper time then, is immediately after the depletion has reduced the force of the circulation, and when the larger internal vessels can spare some blood to the capillaries of the surface without injury. The water should be from 106° to 110° of Fahrenheit; he should continue in the bath until he complain of feeling weak, or faintish; and should

he experience a desire to discharge from his bowels, it should be permitted even in the bath, rather than to fail to have it take place.

2064. Unfortunately for the interest of the patient, he becomes unreasonably impatient of relief, or his friends are too solicitous about this being effected, even at a hazard; opium is therefore proposed; the young practitioner too readily yields to the suggestion, and it is administered at a time when it serves but to increase every existing evil. This medicine therefore can only be useful when exhibited after due depletion, and when the exigency of pain demands it. It should therefore never be given before the *opium point* arrives, and then, if given by the mouth, it should be in combination with calomel, in the proportion of four grains of the latter to one of the former, if the dose of opium requires repeating—if it do not, eight or ten grains of calomel may be given. But laudanum never answers so well in these cases as when given in injections. A tea-spoonful to a gill of warm water is about the common proportions.

III. *Ileus, or Iliac Passion.*

2065. This form of colic is the most dangerous, but fortunately at the same time, it is the most rare. All periods of life, from the infant to old age, may be liable to it. Dr. Good defines ileus as follows: “gripping pain, vomiting, and costiveness, accompanied with retraction of the navel, and spasms of the muscles of the abdomen.”*

2066. In investigating the symptoms of a painful disease of the bowels, it is always important to understand the condition of the alvine discharges previously to the attack. For if it be ileus we have to contend with, it will almost always be found that there has been a constipation of some standing, though the patient may declare, that he has had a discharge daily; in this we must not be deceived if the patient be; for it will almost always be found under these circumstances, that a kind of tenesmus, or a very trifling evacuation of hard fæces, has been mistaken for a proper discharge.

2067. The pain in ileus is of a very acute kind, especially near the umbilicus; it however suffers occasional abatement; though this is sure to be followed by a renewal of suffering. There is a retraction of the abdominal muscles, particularly during the painful periods of the disease. The feet and hands are cold; the pulse indicating no great constitutional sympathy; the abdomen is not sore upon pressure; nor is it distended by

disengaged flatus, though certain inequalities, and occasionally hardnesses may be discovered beneath the abdominal coverings. The stomach is sometimes affected very early in this disease; in two instances we have witnessed, vomiting was almost the initial symptom. This symptom never fails to increase, if the constipation of the bowels be not soon relieved; it is generally at first, bile, and the common secretions of the stomach, and perhaps of the duodenum; but these vomitings may be accompanied by the stercoraceous contents of the large intestines, or even by a part of the injections that have been thrown into the rectum; thus proving beyond doubt, that the valve of the colon has been forced by the inverted action of the intestines.* If the bowels fail to be opened, the vomiting becomes almost incessant, and the distress of the patient is great beyond description; for the little intervals between the efforts to vomit, are filled up with severe hiccoughings. The hands and extremities are cold as death, and clammy with sweat of the same temperature; the pulse is thread-like and fluttering, or perhaps extinct. About this time, or perhaps a little before the symptoms become so dire, the bowels yield, and the bed is deluged with fæces; the inexperienced friends suppose that the disease has relented; and that hope may now be entertained—but unfortunately, there is no ground for such expectation, for the speedy death of the patient too soon convinces them of their error.

Causes.

2068. A variety of causes may be assigned for ileus; from the simple neglect of procuring evacuations, or avoiding constipation, to the unnatural and complicated habit of swallowing knives, &c. The swallowing of the stones of several fruits, as cherries, plumbs, &c. under the vulgar expectation, that they are more healthy when eaten in this manner, *as they are said to promote digestion*. An inordinate secretion of bile of an unhealthy quality; acrid substances taken into the stomach; drastic cathartics; calculous balls; scybala; violent passions or emotions of the mind; scirrhus tumours, &c. &c. Spasm and inflammation of the intestines, have also given rise to ileus, in a manner no less extraordinary than incomprehensible. Of this kind are those cases related by M. de la Peyrouse,† and Dr. Gartshore.‡ In these

* The anatomical arrangement between the ilium and colon, is such, as to render the return of the contents of the colon difficult, but by no means impossible, as ileus, and the forcing of fluids from the rectum into the bowels by means of a powerful syringe abundantly prove.

† Memoires de l'Academie Royale, Vol. XXIII.

‡ Med. Obs. and Inq. Vol. IV.

cases the intestines have become twisted into "nooses and knots, in which the portion forming the encircling cord or bridle has been drawn so tight as to produce strangulation, and render gangrene inevitable. In one instance, the bridle not only produced strangulation and gangrene, but cut through the intestine on the opposite side to the mesentery, making an opening of an inch in length."*

2069. Ileus may arise from intus-susception, as well as from spasm or inflammation; the mechanism of intus-susception is not however very well understood, though its explanation is attempted by Dr. Good. Neither this condition of the bowel, nor inflammation itself, however, are essential to ileus, if we regard the testimony of Stoll, Haller, or Morgagni.† Indeed, intus-susception takes place very frequently in children, without their deaths having been preceded by ileus.

Diagnosis.

2070. This disease cannot be well mistaken; its characters are too strongly pronounced to create embarrassment upon this point. The retraction of the abdominal parietes; the relief afforded by pressure; the moderate excitement of the system; the want of distention from flatus, and the absence of tympanitis, and hernia distinguish this disease from peritonitis and enteritis.

Prognosis.

2071. As this disease is one of great violence, as well as of great obstinacy; and as the parts implicated in the disease are of great importance to life, but have themselves no great tenacity for it, the result of any given case must necessarily be most uncertain. Indeed, the recoveries from ileus are declared by Dr. Gregory to be very few, yet the disease occurs sufficiently often to make us ask an important question, "is ileus necessarily so fatal a disease, as is declared by Dr. Gregory, as to justify in the majority of cases, an unfavourable prognostic?" We think not—we shall presently advert again to this point.

2072. Yet to enable the inexperienced practitioner to form a judgment upon any given case, we will state, that so long as the bowels do not yield, notwithstanding the most unwearied application of the best devised means; and the puking continues of bile, porraceous matter, or above all fæces, the case must be looked upon as extremely menacing, if not hopelessly dangerous. If with these there be hiccough, suppression of urine, cold sweat,

* Dr. G.'s case just alluded to.

† Good, Vol. I. p. 123.

fluttering or extinct pulse, the patient must be regarded as moribund, if not absolutely in articulo mortis.

2073. On the other hand, if the bowels have been made to reject their contents; if pain moderate in proportion to the alvine discharges; if the vomiting diminish, or the throwing up of fæces cease; if the pulse become fuller, softer, and slower; if the skin become warm and moist, and there is a plentiful flow of urine, we may entertain a rational expectation, that the disease will yield, by a proper perseverance in judicious means. The pathology of this disease will be readily understood from what has already been said.

Treatment.

2074. From the history of the symptoms of this disease, it will be evident, that the first object of attention is to remove the obstruction from the intestines; this must be effected by indirect and by direct means. The indirect means, are bleeding from the arm, and leeching the abdomen. From the little excitement betrayed in the beginning of this complaint, bleeding is too often neglected, until it becomes almost too late to employ it; and this in our opinion is one of the greatest causes of the fatality of the disease; for we are far from agreeing it is necessarily so fatal as it proves to be. The next great error in the management of this disease, is the ill-founded and injurious distinction between spasm and inflammation, as causes of it. We shall not stop to inquire into the pathological differences of these two states; for in a practical point of view in this instance, it is of no importance whatever; since one will quickly, if not relieved, be converted into the other. Suppose it to be spasm—is any antispasmodic to be compared to the lancet, under these circumstances? Our experience declares there is none. If there be inflammation, will any one dispute its supremacy?

2075. Bleeding should therefore be immediately had recourse to; but do not let the loss of ten or twelve ounces of blood be called by that name, unless it be attended while flowing, with a disposition to syncope. To this condition of the system must blood-letting be carried, even in the beginning, as a general rule; and if cathartics have failed, or enemata have been unavailing, after fair trial, it becomes absolutely necessary. However hazardous or rash this may appear to the inexperienced or timid practitioner, we can vouch both for its safety and success, in a number of instances, where the cases have been looked upon as desperate.

2076. Leeches are valuable adjuvants in ileus; they should be employed however after general bleeding, unless the case will

not permit its employment previously. The leeches should be placed over the whole abdomen, and in such number as to secure the effects wished for, from a general bleeding. We may now employ our direct means.

2077. After these evacuations have been premised, we may then advantageously begin with our purgatives. The choice of these is of the utmost consequence; for the improper selection of these remedies, constitutes the third cause of the danger from ileus. From the obstinacy or the long continuance of the constipation, it is wrongly imagined, that the drastic purgatives are absolutely required to overcome it; than which, there can be no greater error.

2078. Castor oil is the best possible remedy in the commencement of the disease, and before puking takes place—but after this, it cannot be urged with any possible advantage, as it will be rejected as fast as swallowed. But if this be agreed upon, it should be given by the table-spoonful in a little hot coffee every hour, until two or three ounces have been taken—it must now be desisted from, and recourse had to enemata, which should be made to act by their bulk, rather than by their stimulus—for this purpose, rich flaxseed tea, and molasses, answers exceedingly well, strong soap-suds may be used with advantage.

2079. Should these be rejected without bringing with them an adequate quantity of fæces, or be returned unaltered, a large quantity should be forced into the bowels, by throwing up syringe-ful after syringe-ful, as directed by De Haen, until a large quantity be thus disposed of. Much advantage may be derived from a long flexible tube being passed up the rectum, as it will better secure the introduction of the contents of the syringe. Many stimulating injections have been advised in these cases, and upon the same false principle as the active purges are recommended—we have never seen them successful, though we have known them to be injurious. For their action and effects are precisely like those of the drastic cathartics—that is, they increase the inflammation or irritation of the mucous membrane, and prevent the effusion of serum; while the mild ones abate the irritation, and solicit the effusion.

2080. The neutral salts are also valuable, so long as the stomach will retain them—they should be given in small, but often-repeated doses, until so much has been taken, as to lead to the conclusion that more will not succeed. It is in this state of things, that bleeding and leeching are so promptly successful. We once attended a case of this kind, in which all the ordinary means had been tried without benefit—that is, large doses of calomel had been taken, many active purgatives had been swallowed, and she had been timidly bled. The patient had not had a passage for

nearly two weeks; had fed plentifully, and moreover was sedentary; she was in great agony; vomited incessantly; and was extremely feeble. We proposed that the patient should be placed upon her feet, and bled in this position, *ad deliquium animi*; to this the attending physician, Dr. Budd, consented. It was however distinctly stated to the friends of the patient, that there might be even hazard in the means we are about to adopt, but that there was a much greater chance of success; but in all events, that the case was one of great danger, and if not relieved, would certainly prove fatal. Every thing was left with us. The patient was taken out of bed, and a vein was opened while she was standing; a large orifice was made, and the blood flowed pretty freely, until about twenty ounces were drawn; she now complained of being fainty; and before the arm could be tied up, she dropped on the floor, and at the same instant, the room was nearly deluged with *fæces* and urine. She had no further pain, and recovered rapidly.

2081. When the stomach will retain nothing, calomel is the only remedy we can urge upon it. This should be tried in small doses; as it is the only proper mode to exhibit it. It is a monstrous error, in our opinion, to give large doses of this medicine, when a cathartic effect alone is desired—for certain it is, that small doses are vastly more sure than larger doses. In these cases, we give two or three grains every hour, in a little dry sugar,* until twenty or thirty grains are taken, being confident, that beyond this quantity in twenty-four hours is never useful or necessary. After this quantity has been given, and the patient has been freely bled, mild enemata can now be employed with advantage; for we are pretty certain that the disease will yield. If it do not, the bleeding or leeching should be repeated, or the warm bath, as directed, (*par.* 2063,) may now be an important auxiliary. We have seen a case, which we shall presently relate, in which the croton oil was advantageously employed.

2082. Where the pain has continued to be great, and the vomiting persevering, we have seen the spirit of turpentine, in thirty drop doses every hour, afford much relief. We have applied it, we think with advantage to the abdomen, and found it useful, we think, in the enemata, especially after an extrication of gas has taken place, which sometimes happens when the disease is pretty far advanced. We have never blistered in these cases, nor have we ventured upon emetics, as advised by Stoll.

* Some recommend the calomel in the form of pills; but these are much more liable to be thrown up, than in the way we have mentioned; as this becomes spread over the coats of the stomach, from which it cannot be detached easily.

Besides these means, many irrational and daring practices have been occasionally pursued for the relief of this disease; such as dashing the legs with cold water, cold bath, drinking large draughts of cold water, rolling the patient in the snow, &c.*

2083. Hitherto we have said nothing of opium; a drug that is so often successful in pain, that it naturally suggests itself, whenever this exists. Its powers however are very decided in ileus, when its exhibition is well-timed; but unfortunately it is used in every stage of the disease, without the slightest reference to the state of the system, and this forms the fourth cause of danger from ileus. It answers an admirable purpose in the form of enema, (the only way, by the by, it should be exhibited,) after bleeding has been duly performed; and the enemata have pro-

* In the case about to be related, there is much interest as well as novelty—it is interesting, because it was successful; and it is novel, as we believe it is the first instance in which endermic medication has been resorted to in ileus, for such the disease was:—

“Accumulation of Fæcal Matter, simulating an Internal Strangulation.—A man was attacked after a journey with symptoms of an internal strangulation; he had incessant vomiting, excessive constipation; the abdomen distended, and very painful on pressure; vomiting of fæcal matters. This man had had for a long time a reducible hernia which he had recently reduced; but he affirmed that it offered nothing unusual, and that he had applied his bandage as usual. Baths, reiterated bleedings, diluents, did not produce any relief. In consultation the question was agitated whether an operation should not be performed, and whether there was not an internal strangulation. The majority, however, were opposed to the operation. The patient continued in this condition until the fifteenth day, fæcal matters being thrown up, and his strength declined. At this time a celebrated surgeon being called in, proposed an operation, thinking that it was necessary to operate even in the absence of any evident sign of a strangulated tumour, either in the inguinal canal, in the abdomen, or in the neighbourhood of the ring. The operation was determined upon—but as M. Sanson was about commencing, perceiving no tumour, nor pain, nor tension of any kind above the ring, nor in the inguinal canal, nor deeply in the vicinity, and remarking that the point of the abdomen corresponding to the hernia was the only one which was neither painful nor tense, he examined the abdomen anew with great care, and discovered on the left side, deep-seated and obscure, a long tumour, which seemed to him to be the colon filled with indurated fæcal matters. He introduced the finger into the rectum as deeply as possible; he experienced great difficulty in introducing it, so much was it contracted. He then endeavoured to introduce a gum elastic sound, but it would not enter far, so strong was the constriction of the digestive tube. Many enemata of olive oil were injected with force; at first they produced no effect, but on continuing them they brought away some soft yellow matters; they were continued without interruption. M. Sanson then determined to administer a purgative, but it was impossible to give it by the mouth, the vomiting being continued, and the patient not being able to retain even a cup of water. A small blister was applied to the thigh, and after removing the epidermis, a drop of oil of croton tiglium was placed on the cutis; an abundant evacuation resulted. The vomiting ceased; the patient evacuated in three or four days, many pounds of soft, fellow, fæcal matters. All the symptoms evidently depended upon this accumulation of fæcal matters in the digestive tube.”—*Amer. Journ. of Med. Scien. for Feb. 1831, p. 518, from Journal de Medecine Prat. July, 1830.*

duced an irritable condition of the rectum; and when it becomes important to give to the remedies exhibited by the mouth, time to operate. Then a wine-glassful of rich flaxseed tea, and a teaspoonful of laudanum, thrown up the rectum, will almost always secure some repose to the patient. Should the first enema be rejected, a second or a third should be given, at short intervals—or a suppository of six grains of opium may be introduced beyond the sphincter ani.

2084. The following case, in our view, has much interest; we shall therefore take the liberty to relate it in detail. September 13th, 1824.—We were called this morning at five o'clock, to Mrs. M. whom we found labouring under severe pain in the umbilical region, with an incessant vomiting of faecal matter; her skin cold, shrunk, and wet with perspiration; the pulse tense, small, and frequent—bowels much constipated. She had taken a number of purgative medicines before we saw her, and had received a number of injections, without benefit. The stomach would retain nothing a single moment, and the injections returned as soon as given. To be bled sitting up, until she felt faint; a drop of croton oil every hour, until it operate; warm water and molasses to be thrown up the rectum, syringeful after syringeful, until the bowels were filled with it.

2085. 11 o'clock, A. M. We saw our patient six hours after the first visit. We found her much relieved; lost about twenty ounces of blood before she became faint—blood very sizzly—four drops of croton oil had been given, which sat well upon the stomach; she received six large syringes of molasses and water. The bowels yielded almost immediately after the bleeding, and the injections—she had large bilious stools of a yellow colour, but without smell. An injection of a gill of water and a teaspoonful of laudanum, and the loss of more blood, in case of a return of pain—two drops of croton oil immediately.

2086. 5 o'clock, P. M. Free from pain; no vomiting since the morning—the croton oil procured several more loose stools—the laudanum was not used, nor the bleeding resorted to, as she continued to be free from pain—a wine-glassful of weak chicken water, every hour or two; toast tea in small quantities for drink.

2087. 14th.—9 o'clock, A. M. Complains of a little pain around the navel—pulse a little accelerated, with some warmth of skin, owing most probably to the use of the chicken water. An ounce of ol. ricini. 6 o'clock, P. M. Oil operated pretty freely; free from pain and fever—diet, a little thin sago or tapioca—drink, as before.

2088. 15th. Found the patient sitting up in bed, though she had passed rather an unquiet night, owing to the operation of her medicine. In these discharges was voided a ball of the size of a

pullet's egg, and of an egg-like shape, with many small stones, of which we received seven, they not having preserved the rest. They were of irregular shapes, smooth, pretty highly polished, and of a fine brown colour, interspersed with bright yellow streaks—the brown tone, was precisely the same as the tamarind seed; the large mass, was evidently formed by aggregation or deposition, as the different strata of which it was composed, could be distinctly seen. They were deposited in the museum of our medical college.

2089. 16th. Free from complaint; passed another small stone.
17th. Perfectly well.

Observations.

2090. The patient was attacked on Easter Sunday, with an intermittent, which lasted a week—during the greater part of the summer, her bowels were alternately constipated, and relaxed, with a pretty constant pain about the navel. Regular in her menses; forty-two years of age, and the mother of nine children.

2091. On the 9th of September, 1824, she was attacked with vomiting, and pain in the abdomen; bowels very costive; she took a large dose of aloes, but it did not operate. She remained in this situation until the 14th, when we were called, and found her in the state above described.

2092. This case, as well as the one mentioned before, demonstrate clearly the importance of bleeding ad deliquium animi, even after the formidable symptom of throwing up the fæces had taken place; we have known but one case of fatal ileus for many years, and that we did not see till within three hours of death.

IV. Colica Pictonum, or Colic from Lead.

2093. This colic is peculiar, because it has necessarily for its cause the application of lead. This is determined by the liability of those who work in the preparations of this metal, or are concerned in its various preparations. It may however take place in those who have no direct concern, either in its manufacture, or in its use—thus this metal may be conveyed into the system, or be made to act upon it, in various ways. Its fumes may be breathed, as those who are in the environs of smelting furnaces, have frequently experienced; indeed, in such situations, animals are said to have suffered from the same cause; and we know it has been repeatedly produced by sleeping in a newly-painted room, or from even remaining a long time in an atmosphere loaded with emanations from white lead paint. It may, and it very often has been conveyed immediately to the stomach, by wines

which have had their acidity corrected by the sugar of lead, or by litharge.* Water which has stood a long time in a leaden vessel, or has been conducted by leaden pipes, has been accused of producing this colic; of this however considerable doubt may be justly entertained, as the experiments and observations of Dr. Percival appear to be conclusive, though the contrary opinion is maintained by Pariset and others.†

2094. Lead in its metallic form does not appear to have any unfavourable influence upon the system, either externally applied or internally deposited—for it has long been the means of making pressure externally, in the umbilical hernia; and balls have been retained for many years in various parts of the body, without being followed by the slightest injury. But when in a state of oxyde, or in form of a salt, it has when applied been followed by paralysis, or other inconvenience, (par. 890,) and Sir Astley Cooper witnessed the same misfortune follow the use of a collyrium, in which lead entered. It may also be conveyed to the stomach by the saliva, or more abundantly swallowed by eating

* “In a late sitting of the Westminster Medical Society, Dr. Thompson stated, from a number of experiments and observations, that none of the salts of lead, with the exception of the carbonate, are poisonous. Where mischief has resulted from the taking of acetate and subacetate of lead, he believed the cause was the conversion of these into carbonate.”—*Medico-Chirur. Review for Feb. 1830*, p. 491.

† Dr. Christison has proved, that the tarnish the clean surface of lead receives, is not from oxidation, but by a thin layer of the carbonate of lead, forming. The formation of this crust is aided by moisture, and probably by the presence of extra-carbonic acid in the air. Dr. Lambe says that most if not all spring water possess the power of acting on lead, owing to the presence of some saline ingredients. Guyton-Morveau proves that distilled water acts rapidly on lead, by converting it into a hydrated oxide. And Dr. Thompson of Glasgow maintains that the lead in water is only suspended, and is not held in solution, and thinks that the quantity in water passing through leaden pipes, is too small to be injurious.

Dr. Christison found that distilled water deprived of its gases, and protected from the air, had no action on lead. But with its customary gases, a freshly polished surface of lead exposed to it becomes quickly tarnished and white. This white crust is a carbonate. Rain or snow water, before it touches the earth is nearly as pure as distilled water, and acts with nearly the same rapidity; but when collected in a city, and contaminated with certain substances, its activity is much diminished—owing to certain substances held in solution by the water, as perhaps all the neutral salts, as the sulphates, nitrates, acetates, tartrates, arseniates, &c. having the power to destroy the solvent power of water. These facts are curious and interesting. “Most spring waters, unlike rain or snow water, have little or no action on lead, because they generally contain a considerable proportion of muriates and sulphates.” And in consequence Dr. Johnson observes, “the water of Edinburgh appears to be nearly destitute of all action on lead;—and we think the good citizens of London need not be much afraid of the painter’s colic while they are supplied with water from the Thames, or even the new river. If the purity of water be a dangerous property, the metropolis is as secure as if they drank nothing but nectar.”—*Ibid.* p. 493.

with unwashed hands, as Good informs us he prevented it in a painter, by advising the careful washing of his hands.

2095. When lead is introduced in solution into the stomach, its effects are more obvious upon the digestive organs than upon the nervous system. Yet we know from experience, unless influenced by idiosyncrasy, the acetate of lead may be taken for a considerable time, without the slightest inconvenience; and it is applied daily externally to large and oftentimes to very irritable surfaces, without any evil consequence following. It is nevertheless, a metal that should not be trusted too far, when it can be avoided, as it produces consequences every way troublesome, as well as difficult to remove.

2096. When about to produce mischief in the alimentary canal, as colic, we find costiveness of an obstinate kind induced; rendering the fæces at the same time hard, and having them formed into little balls, resembling those evacuated by sheep or goats. The mouth is bitter, and the tongue foul or even dry. A sensation of weight or dragging is felt about the epigastrium; nausea, and sometimes painful and obstinate vomiting. The belly now becomes sore, but not always to the touch; borborygmi are almost constantly heard; the whole abdomen, the hips, the loins, the umbilicus, and the stomach, become in turn the seat of pain, which seems to be relieved by pressure sometimes, but augmented at others. A sensation like globus hystericus is felt in the throat; acid, or acrid eructations; hiccough; the abdominal parietes are hard and soft in places; tumours of unequal size may be discovered below them, which often change their place. Painful tenesmus, extreme agony, and loud and fearful cries now follow, and continue with more or less force, until the paroxysm is removed by proper applications. This however is of uncertain duration, as remedies may be more or less judiciously selected, or as they may be more or less efficient. Pain more or less acute has continued for years without much aggravation or diminution, and seems to afflict more by its obstinacy, than by its severity. In these chronic cases, the belly becomes contracted at one time and relaxed at others, but always experiencing more or less inconvenience.

2097. Fever rarely attends this disease in the beginning, though the circulating system is singularly and decidedly affected—the pulse is uniformly of an unnatural hardness; nor is this an evanescent condition, or easily conquered, as it persists until every other symptom disappears. The breathing is also affected, in consequence of a convulsive motion of the diaphragm and abdominal muscles. The brain does not appear to be much or acutely affected, though head-ache, giddiness, loss of memory,

and anxiety are observed—we have seen delirium but once in this complaint.

2098. The limbs are affected oftentimes severely in this disease; not so much during the paroxysm, as after it has passed. In protracted cases, much inconvenience is experienced in all the limbs, as pains resembling rheumatism, or inability to move, bordering on paralysis, are almost sure to follow.

Diagnostic.

2099. This disease may be confounded with enteritis, when it first invades the system, especially in young subjects; but attention to the occupation, or the probability of exposure to the influence of lead, will lessen the difficulty of distinguishing these affections from each other. The pain in this colic, is more confined to the umbilicus, and diffuses itself to the neighbouring parts; the patient is also able to bear pressure; indeed, he often presses himself against the edge of a table with a view to relieve himself; the absence of febrile motion for the most part; and the almost constant state of retraction of the abdominal muscles, strongly mark this disease.

Prognostic.

3000. If much puking, fever, heat of skin, accelerated pulse, little or no urine, and that high-coloured and offensive, obstinate constipation, swelling with tenderness of the belly, cramps in the legs, and hiccough attend, the augury must necessarily be bad. But if the contrary of these symptoms obtain; especially if the stomach is quieted, the bowels yield readily, the skin become soft and disposed to moisture, and the urine be plentifully secreted, the disease will almost always be obedient to remedies, and proper treatment.

Pathological Appearances.

3001. Never having had an opportunity of examining a body destroyed by colica pictonum, and feeling it highly important to its treatment that its pathology should be understood, we have selected Pariset's account of the appearances on dissection of patients who had died of this disease.*

3002. "On opening the dead bodies, the intestines, but especially the colon, are found contracted in several portions of their

* See Dict. des Sciences Med. Art. Colique.

length, and filled in the intervals of these narrowings, with a dry, hard matter. On the stomach we may observe red or brown spots, and the bowels have the appearance of being bruised. The bladder often betrays marks of great irritation, especially near its neck; the mesenteric vessels, and the whole system of the vena porta, are filled with blood."

3003. Lobstein is of opinion that a pathological condition of the sympathetic nerve is the cause of colica pictonum. Pariset takes no notice of the nervous system in his account of this disease. This disease certainly presents some remarkable phenomena, as globus hystericus, paralysis, &c. which would be of difficult explanation, from inflammation of the common tissues of the stomach and intestines.

Treatment.

3004. Though we do not in general discover in colica pictonum a well-marked, or distinctly-formed, pyrexia, it is nevertheless certain, that in this disease the arterial system is materially affected, together with local inflammation, as a tense and vibrating pulse, (par. 2097,) and as post mortem examinations declare. It must therefore be certain, that the proximate cause of this disease is inflammation produced by the action of lead, in some one or more of the intestines, and occasionally the stomach itself. It has been owing to the absence of the signs of phlegmasia, as indicated by the condition of the sanguiferous system on the one hand, and the presence of violent pain, especially when it assumes an alternate, or spasmodic form, on the other, that the proximate cause of colica pictonum has been looked upon as a derangement of the nervous system. But this is a very partial, and we may add, imperfect view, of what, on the one hand, may constitute phlegmasia, and on the other, neurosis.

3005. For modern pathologists have most satisfactorily proved, that inflammation, and this to a very considerable extent, may exist without the ordinary signs of this condition, (such as an accelerated pulse, heat of skin, or thirst;) and on the contrary, that the latter signs do not prove to a certainty, the former, or the inflamed state of a part; and consequently, that pain, on the one hand, accompanied by heat, and an increased arterial action in the part, as in certain of the neuralgiæ, do not absolutely prove the presence of inflammation, so on the other, the absence of these signs do not prove its non-existence.

3006. It appears, however, every way certain, that neither of these conditions continue long idiopathically, in either of the systems just mentioned, (par. 3005,) for they will soon mutually involve each other; and theoretically, perhaps, it might appear

a matter of indifference, in which of these systems the irritation commence, if this would be the certain result; but it may be highly important in a therapeutical point of view. For if the primitive impression be upon the nervous system, it is every way certain, it will not be long confined to it; as it will pretty quickly manifest its influence upon the circulating system. Or, if we suppose the irritation to be originally in the sanguineous, it will be confined to it but a short time before the influence of the irritation will be felt by the nervous system.

3007. If it be certain then, as declared by some, that the action of lead is always *immediately* upon the nervous system, it is nevertheless no less certain, that the circulating system will be quickly implicated. In a limited, or a purely hypothetical view, it might be insisted, that our remedies should be addressed to the nervous system in attempting the cure of colica pictonum, as there must be a period under this consideration of the subject, that it would be idle, if not injurious, if it were treated as a disease of the sanguiferous system. We admit this to be theoretically correct; but if acted upon, it would be highly mischievous in very many instances, as this state of things is not only, (most probably,) very evanescent, but so extremely obscure, that we should find it difficult to determine its pure and uncomplicated existence, or when this was about to cease.

3008. For these reasons we must regard a phlogosed condition of the intestines to be the most probable, as well as by far the most common, in colica pictonum. So far, we have seen nothing in the acute form of this disease, to lead us to suppose, that the irritation, or influence of the remote cause of this disease, is confined, beyond an imaginary period, to the nervous system; and consequently, to act upon the presumption, that it is constantly so, would but ill comport with what we learn from the examination of the dead body. (par. 3002.)

3009. Our own experience therefore is so entirely in favour of the antiphlogistic plan of treatment; and our success has been hitherto so uniform, that we should find it difficult to lay down a plan of treatment essentially different from that suggested for ileus. It may however be proper, or perhaps useful, to say, that in a recent and obstinate case, that after pretty extensive bleedings, general, as well as local; the various mild cathartics, and the repeated employment of the warm bath, we found equal parts of castor oil, and spirit of turpentine, in half ounce doses, once in two hours, to open the bowels with great certainty. We are disposed to believe, that these evacuations were the effect of this combination, and not a coincidence; as this patient had a severe relapse about a week after we had taken our leave of him; for which he had again to undergo a discipline pretty si-

milar to the first; and he was again operated on by the castor oil and the turpentine.

3010. But notwithstanding our conviction, that the disease is essentially an inflammation of the intestines under some particular modifications of the, (perhaps,) nervous system, we are nevertheless obliged, as a matter of common honesty, to rely upon the truth of the treatment about to be mentioned, but which puts all theory, or pathology, to defiance—this is, the almost exclusive treatment of this disease by large and repeated doses of alum. For the better understanding of the treatment of this disease by this method, we will transcribe a case, with the routine of practice that was pursued in it. It is taken from the “Archives Generales de Medicine, tom. xviii. an. 1828.”

3011. It is declared in the title to this paper, that the cases were collected under the eyes of M. Kapeler, physician-in-chief to the Hospital of St. Anthony, by M. D. Montanceix. We have taken the case at random; only taking care to have one of the several, that contrasts the practice of “de l’Hospital Saint Antoine,” with “de la Charité.”

3012. “CASE III.—J. Maiseau, of a strong constitution, bilious temperament, aged forty-years, a cooper, was brought into the hospital of St. Anthony, on the 27th February, in a condition that was at first mistaken for intoxication; this was followed at intervals by a furious madness, that disposed the patient to attack every body around him. He thought every body had a design on his life, and upon the slightest noise would put himself on the defensive. If we attempted to press upon his abdomen, he would get into a rage, and threaten severely. He however would appear comforted by the pressure. The pulse was extremely slow. Not knowing any thing of this man’s history, we could not account for his conduct; his papers however were now brought to us. We found by these that Maiseau had been several times treated for colica pictonum. One of these papers declared the patient had left the “Charité” on 11th of February, cured of a metallic colic, after a stay of three months in that institution. From this testimony we did not hesitate to give him a drachm of the sulphate of alumine, and a purgative glyster. Three hours after this he had a tranquil interval, and he passed the night pretty quietly. No stool.

3013. “28th. More quiet, but his mind constantly wrong; pulse very slow; the abdomen painful; the patient tossing his head continually in all directions; his eyes staring; tongue dry and red; (two drachms of alum; a purgative enema every two hours; flaxseed tea.) At four o’clock in the afternoon the patient recovered his senses; he answered questions properly, and had no recollection of what had passed; colic constant; he lost

his sight, (amaurosis;) he trembled in all his limbs. No stool; (two drachms of alum; two purgative injections.) 29th. More pain, and trembling; return of appetite; loss of sight continues. Four stools during the night; (prescription the same.) 1st. March. In same condition. 2d. Begins to distinguish objects; (prescription the same.) Nourishment. 15th. Recovered his sight entirely, from the 3d to the 12th; he took every day a drachm of alum. Several boils appeared successively on his body, and on the thighs. He left the hospital perfectly well, after having been there forty-five days."

3014. Alum is by no means a new remedy in colica pictorum; it was first proposed, we believe, by Dr. Grashius as a specific in this disease. M. Gendrin says that the sulphuric acid in the dose (quantity?) of a drachm or drachm and a half mixed with three or four pints of water, is equally efficacious and perhaps more prompt, than the alum.—*Trans. Med. January, 1832.* And as a preservative against attacks of this colic, he recommends—

R. Sulphuric acid	-	-	-	-	3j.
Water	-	-	-	-	℥iij.

A glassful to be taken daily, sweetened with the syrup of gum.

SECT. VII.—CYSTITIS.

Acute Cystitis.

3015. Men rather advanced in life, if we can rely upon our experience, are more liable to cystitis, than the young and healthy. We have seen two attacks of this disease where the subjects were each beyond their eightieth year. In females it is comparatively a rare disease.

Symptoms.

3016. Lancinating pains are felt in the region of the bladder, accompanied by a constant burning sensation. There is also a frequent desire to pass water; which, when the effort is made, eventuates in a sparing dribbling, that neither abates the irritation, nor affords relief. Sometimes there is an entire retention of urine. When urine is passed, it is generally high-coloured, or even tinged by blood. In some instances, there is a continued *stillecidium* of urine; especially, if the bladder be full. A constant aching pain is felt in the perineum, which is increased by even moderate pressure; when this is intense, the rectum becomes involved by sympathy; and a kind of *nismus* or *tenesmus*,

is sometimes excited; and, if the effort be obeyed, it greatly augments the painful sensation at the neck of the bladder. If the part immediately above the pubes be pressed, it gives considerable pain; and by a careful examination of this part, we may in some instances detect the distended, and irritated bladder. The testicles also are sometimes involved, and become very painful, as well as the upper portions of the thighs. The bowels are generally confined, and occasionally difficult to move; and when this is effected, it is for the most part attended by tenesmus. Some have thought, this symptom arises from an extension of the inflammation of the bladder; but we have never seen any evidence of this; and we think it altogether a sympathetic affection. It is a little difficult at all times to say what portion of the bladder is the seat of the inflammation, even in the commencement of the disease; nor is this of much moment, as it does not influence the treatment—but, as a general rule, we would say, it is the neck of this organ that is most frequently besieged; and this for obvious reasons. First, because it is the most active portion of the bladder; secondly, it is the most dependent, and confined; consequently, most likely to embrace and retain any mechanical agent, as gravel, sand, or calculi within its folds. Thirdly, because certain medicines appear to act upon this part, as far as can be ascertained by the sensation excited upon the passage of a catheter or bougie. It must nevertheless be admitted, that dissection has revealed that the body of this organ has been found thickened, as well as ulcerated. When the inflammation occupies the body of the bladder, it may be continuously spread to the ureters, and even to the kidneys. This may produce an entire suppression, or may cause a more obstinate retention of urine. Should this happen, and an attempt be made to pass either a bougie or catheter, much pain will be excited; and we have seen the trial followed by a considerable discharge of blood.

Terminations.

3017. An acute cystitis, like all the phlegmasiæ, may terminate by resolution, by suppuration, by gangrene, and by alteration of structure—but the mode of termination will sometimes depend upon the vigour of the treatment; the period at which it is employed, and the age and habits of the patient.

Resolution.

3018. If resolution be about to take place, we find the pulse becomes softer, less frequent, and smaller; or in other words, an abatement of fever, and also a diminution of pain. The skin

becomes softer, cooler, and disposed to sweat. The urine becomes more abundant, is passed with less difficulty, and deposits a sediment. The perineum and hypogastrium are less painful, and will bear moderate pressure without causing pain.

Suppuration.

3019. It is said, that suppuration is a rare termination of cystitis; we believe this to be true, especially in the acute form of this disease; for such is its general violence, that ulceration takes place before suppuration can be established. For when this disease is of an exalted character, the patient dies rather from the over-distention of the bladder, than from the consequences of inflammation itself—at least, this was the case in the only two instances we have had the opportunity of examining after death. But when this mode of termination is about to take place, it is announced by the general precursors of suppuration, such as rigours, abatement of pain and fever, together with a purulent-looking substance mixed in the urine, which soon leaves the urine and settles at the bottom of the vessel. We have seen this substance in two instances, prodigiously large in quantity, and continue to be yielded for a long time. We were of opinion at the time these cases occurred, that it was the product of the mucous membrane of the bladder. We are however told, that an abscess may form in the interstitial coats of the bladder, and break within its cavity, and from thence be discharged—we have never witnessed such a case; but we do not deny it, as an occurrence. In such cases, we should think, that the pus-like substance would not bear the same aspect as that furnished by the inflamed mucous membrane—it would most likely be accompanied by a discharge of blood, or have blood mixed with it.

3020. We are informed, that the matter has found an outlet, through the rectum; and has even opened within the cavity of the abdomen, the labia pudendi of females, and through the cellular structure of the scrotum. Sometimes the mucous membrane has had the appearance of fungus, found thickened, or studded with scirrhus indurations.

Gangrene.

3021. When cystitis runs its course rapidly to death; that is, within six or seven days, the bladder is said to become gangrenous—we have seen it ulcerated, (par. 3019,) or as it is generally termed, burst, within that time; but have never seen it absolutely in a state of gangrene, though we do not dispute the fact, as stated by authors. When this is about to take place, the

symptoms that usually attend the loss of life in an important viscus, present themselves in this—namely, a sudden cessation of pain, clammy sweats, small frequent pulse, prostration of strength, cold extremities, cadaverous countenance, slight delirium, hiccough, death.

Causes.

3022. The causes that may produce cystitis, are sufficiently numerous; among these may be reckoned, gravel, sand, or calculi; blows, kicks, or other violences. The unskilful introduction of the catheter or a bougie; overdose of cantharides, or being absorbed from blistered surfaces; turpentine; overdoses of camphor or opium. Morbid translations, or metastasis of gout, rheumatism, repelled eruptions, stimulating injections, gonorrhœa, suppression of hæmorrhoidal discharges, sudden check of perspiration, &c. &c.

Treatment.

3023. The practitioner who is easily alarmed when blood is drawn from his patient, will rarely be successful in the treatment of acute cystitis, if he carry these fears into his treatment; for there are few diseases that can spare it better, or that requires it more. It should be freely drawn from the arm, especially in the beginning of the complaint; and repeated again and again, if the state of suffering and the condition of the pulse calls for it.

3024. Besides this general depletion, leeches must be liberally used; especially, when much pain is felt in the perineum and rectum; when the urine is discharged guttatim, or but in a very moderate quantity; when the pain, by the sensations of the patient, is located at the neck of the bladder; but above all, when ischuria attends. We need not regard either their number, or the quantity they abstract during the active stage of this disease, provided they are so numerous as to occupy the whole face of the perineum, portions of the groins, and the verge of the anus, and that they abstract blood freely. The *after-bleeding* should be encouraged by the application of cloths wrung out of warm water, or by the application of a soft bread and milk poultice placed between the fold of fine linen. It rarely happens that a single leeching is sufficient, when symptoms run high, or the disease been neglected in the early stage; or what is worse, improperly treated. The leeches must therefore, like the bleeding, be repeated, so long as pain and dysury require their application.

3025. If the bladder be distended, which can be pretty certainly ascertained by examining the hypogastrium, by the sen-

sations of the patient, and by the quantity of urine that is discharged. With a view to ascertain this, we direct that every drop of water that escapes from the urethra be collected in a urinal—by this means we may very nearly determine if it be the natural, or accustomed quantity of the patient. If we are not careful of the state of the bladder as regards distention, much, or perhaps irreparable mischief may ensue; therefore, when the quantity voided is not sufficient to prevent accumulation, the catheter should with great care and skill be introduced, and repeated, as the exigencies of the case may demand.

3026. We are aware that this direction requires great care; but when the distention is threatening, it is the lesser evil to attempt it, provided, the operator be experienced and skilful. It sometimes however happens under the most skilful management, that the bladder cannot be entered by the catheter; either because the sphincter of the bladder will not yield, in consequence of its engorged state, or because it is excited to spasm: if this obtain, force must not be made to overcome it. In the first case, all forcible attempts to enter the bladder, should be desisted from, and the utmost latitude and freedom be given to antiphlogistic remedies, to the very last moment that can be spared for their trial—the warm bath should also be tried, before the patient is abandoned to his fate; for we believe under the existing circumstances of the case, and condition of the parts, any operation would be totally unavailing. In the second case, antispasmodics, should be resorted to; and as far as success in two cases will justify the recommendation, the external application of tobacco to the genitals and perineum, merits the preference. Or it might be exhibited per anum. Opium in enemata, should also be held in requisition or used in the form of a suppository.

3027. Hamilton has extolled the combination of calomel and opium in affections of the bladder; and we think occasionally we may derive advantage from it, if used at the proper time; that is, after the reduction of the inflammatory symptoms; but not before.

Regimen.

3028. During the whole treatment of the inflammatory stage of this complaint, a strictly antiphlogistic regimen should be persisted in; for there are few diseases in which it would be so unsafe, to deviate. An ounce of animal substance in any shape or form; or a single tea-spoonful of any alcoholic liquor, might prove fatal. None but the mildest and most bland articles of drink should be given; as barley water, gum water, rice water, flaxseed or slippery-elm bark tea, &c. All diuretics should be

withheld, as no stimulation of the kidneys can benefit the inflamed bladder. The drinks just suggested, beside serving their own proper service, will also afford sufficient nourishment for the whole of the active stages of this disease.

Chronic Cystitis, Cystirrhœa, or Catarrhus Vesicæ.

3029. The acute inflammation of the bladder, sometimes leaves its mucous surface in a state similar to the vaginæ of women, or the urethræ of men, when the one is labouring under leucorrhœa, and the other gleet. But it is not always necessary to the chronic form of cystitis that the mucous membrane of this organ, should have been preceded by active inflammation. We have certainly seen a number of instances, to the contrary; and where no unpleasant symptoms preceded the purulent discharges from the bladder; and where this circumstance alone first attracted the attention of the patient—this, especially obtains in very old people, who are most obnoxious to this complaint.

Symptoms.

3030. We have witnessed two conditions, of the catarrh of the bladder—1. Where it was neither preceded, nor accompanied by pain or other inconvenience; and 2. Where pain existed in a moderate degree. In the first, pressure upon the perineum or hypogastrium produced no pain or any other irritation, though much purulent matter might attend each emptying of the bladder. In this form however as well as in the second, there is a more frequent desire to pass water than natural, owing perhaps, to the presence of pus within the bladder, or because, the mind is directed to this organ in consequence of this discovery, which we know has a decided influence upon its functions. In the second condition, some inconveniences are constantly present; such as pain upon pressure, though moderate in degree, both above the pubes, and upon the perineum. A sense of heat or burning in the region of the bladder, especially just before, as well as immediately after making water. A sense of weight or bearing down, when the patient is on his feet, or when his bowels are constipated; pain, but not severe, in the testicles, and the small of the back, and loins. The stomach deranged, by loss of appetite, belchings, nausea, or even vomiting sometimes. The tongue usually furred, attended by a disagreeable taste in the mouth, especially in the morning. There is almost always in the second condition of this complaint, some febrile excitement—hence, thirst, heat in the hands and feet, and frequently partial, but copious sweats. The urine is first found to be rather whiter than natural, and is ob-

served to separate into two portions; the supernatant, is the urine deprived of the pus; and the deposit, the purulent matter thrown out by the mucous membrane of the bladder. The quantity, and density of the matter mixed with the urine, will vary very much in different individuals, and in the same individual at different periods of the four-and-twenty hours—it is greatest in quantity, and in tenacity, early in the mornings, and especially if sleep has been undisturbed during the night, by the exhibition of an opiate. This is readily accounted for, as the bladder has retained its contents longer, and more time is given for the secretion, and consequently the accumulation, of the purulent matter within it.

3031. We are told of enormous quantities of this purulent mucus being discharged, daily—to the amount, it is said, of pints. We have never however witnessed any thing like this excess; though in one case, a gentleman of more than eighty, we estimated the quantity yielded, and we took some pains to be accurate, at three half pints; and this we thought enormous. The mucus is of different degrees of tenacity, which appears to depend in some measure upon the degree and extent of leison the mucous membrane may suffer. Prout says “it may be drawn into strings” (when cool) “of considerable length, and the vessel may be frequently inverted without its falling out.” When the disease is of long standing, or has been preceded by high inflammation, the urine will sometimes contain a good deal of blood, or there may be even considerable hæmorrhage. Dr. M'Dowell says, “blood is often discharged in very large quantity; and together with the abundant mucus, a white powdery sediment, or sanious matter, is mixed with the urine.”—*Dub. Trans.*

Pathological Changes.

3032. Dr. M'Dowell, (Dublin Transactions, Vol. IV.) found in inveterate cases, the mucous surface of the bladder in “different degrees of vascularity, from merely a few patches of a dark or bright red colour to an entire vascularity; in some cases so marked, as to appear as if the bladder had been daubed over with blood; the veins generally turgid; the membrane much thickened; frequently numerous ulcers occur, covered with a tenacious brownish lymph; these are sometimes deep and numerous, so as to give a honey-comb appearance to the membrane. The inflammation sometimes ends in complete sphacelous of the interior of the bladder.”

Treatment.

3033. This disease must be regarded as a sub-acute cystitis, and an antiphlogistic plan must be pursued; the severity or strictness of which, however must be regulated by the evidences of general disturbance of the system, or by the degree of local irritation. Where there is any exaltation of the pulse, or much local suffering, we may if the first condition obtain, abstract blood from the general system; if the latter, from the perineum, and verge of the anus, by leeches; or by cups from the upper inner parts of the thighs. All liquors, should be especially avoided; and all animal substances should be refrained from, so long as there is any increased frequency in the pulse, or the slightest febrile movement at any portion of the day. When every appearance of inflammatory irritation has subsided, the uva ursi, balsam copaiva, white turpentine, the pipsissewa, (*chimaphila umbellata*,) the buchu;* some of the preparations of iron, either alone or in combination with some one of the tonics above named may be tried, with a prospect of success. Dr. Eberle informs us, he effected a cure by the tincture of iron, and the uva ursi. All rude motions, or severe exercises should be avoided.

SECT. VIII.—NEPHRITIS.

Acute Nephritis.

3034. The kidneys, like every other viscus, are liable to peculiar affections, and from a considerable variety of causes. There are a number of organs that sympathize with them when in a state of irritation, or of inflammation—as the stomach, the brain, the skin, the bladder, the testes, &c. It is well to bear this in mind; as it sometimes happens, that the seat of irritation is not always easily detected, and may even pass without suspicion; thus giving uncertainty to our therapeutical means. Thus, nephritis is, occasionally, unattended by any marked derangement in these organs; while the stomach, the brain, or the bladder, may exhibit all the marks of an idiopathic affection, while the source of irritation is the kidney—in a word, there are few of the viscera that have more extensive sympathies. While on the other hand, it very often reciprocates with other portions of the body. Each abdominal organ in a state of disease, may create much uneasiness in the kidneys; and they may even become the seat of me-

* Much has been said in favour of the *buchu* in affections of the bladder; more than we have found it to deserve in the trials we have made of it, in the mucous discharge from the bladder.

tastasis. They are not however extremely prone to acute inflammation, though liable to chronic affections peculiarly their own; as calculi, sand, and gravel. But when the kidneys are attacked by acute inflammation, it excites sufficient alarm, though it rarely fails to be subdued, by early and judicious means.

Causes.

3035. Whatever is capable of irritating the pelvis or substance of the kidney, may exist in such force as to cause inflammation—thus the more powerful diuretics unduly urged; as cantharides, nitre, camphor, the turpentine, or the Harlæm oil, the immoderate use of alcoholic liquors, stone, gravel, sand, or other calcareous matter blocking up the tubuli uriniferi, or irritating the pelvis of the kidney, may give rise to nephritis. Certain other mechanical causes may also produce this disease; as wounds, contusions, tumours, over-exertion of the muscles of the back, violent jolts from riding, or from this exercise being too long continued.

Symptoms.

3036. This complaint is frequently ushered in by chilliness to which violent reaction sometimes succeeds; pain in the lumbar region; but this not always intense, but can generally be increased by pressure or motion; especially when attempting to straighten the body. Instinct, however, directs the patient not to attempt this unnecessarily; on the contrary, we find him almost always inclining to the affected side; thus relaxing the lumbar muscles. Hence he lies most commonly on the pained side, or upon his back. In some instances, this disease is accompanied by gastro-enteritis. The urine is often tinged with blood, or even bloody in the acute stage of the disease, and but small quantities are rendered at a time; or it may be even suppressed.

3037. When the inflammation is produced by a foreign body in the kidneys, the fever is almost sure to be higher, than when provoked by other causes. In such cases, the pain is more intense,* throbbing, and the pulse full and hard. The testicle on the side of the affected kidney is sometimes violently retracted; when this happens it is however supposed that the principal seat of irritation is in the ureter; or that the inflammation, if in the kidney itself, is of a less acute form. When this takes place,

* M. Bouillaud says, that pain does not always attend inflammation of the kidneys.

the arterial system, as well as the nervous, exhibit the same general condition, as in any severe phlegmonic affection; such as a throbbing, or pulsating sensation in the region of the kidneys; dry skin; thirst, constipation, and pain, from an erect position. When the inflammation arises from gravel or sand in the pelvis of the kidney, we frequently find sabulous matter, or lateritious deposits in the urine, after standing.

3038. Nausea and vomiting frequently attend this disease. When both kidneys are implicated, the quantity of urine is reduced to a very small quantity, and sometimes is entirely suppressed; this however occasionally occurs when the disease is confined to one of these organs, as the functions of the other may be interrupted by sympathy.

3039. The pulse, in this disease, is full, hard, and frequent, in the earlier stage of the affection; but should the disease not be obedient to well-directed means, it becomes at the end of the third or fourth day, reduced in both volume and force; especially, if the stomach shows strong evidence of sympathy.

Prognosis.

3040. Much depends upon the success of early remedies in this disease—if the disease have yielded agreeably to expectation, it pretty quickly subsides, and may be said to be cured. We should constantly inspect the urine during the progress of this disease—if it become abundant, high-coloured, and somewhat loaded with mucus, we may look for a happy termination. Much relief is also experienced, when the flow of urine is large; but this is rarely critical, without it is coloured, as just stated, at the same time. These favourable changes generally show themselves before the fifth day; but should the symptoms persist without amendment, much may be apprehended; especially if there be stupor, and a dull heavy pain in the region of the kidney, take place of the acute, that had previously existed, accompanied by chills; in this case we have reason to fear, that an abscess will form, and suppuration ensue.

3041. Should this occur, the matter may discharge itself in one of several ways. 1. Through the pelvis of the kidney to the bladder and urethra. 2. Into the abdomen. 3. Externally. The disease however, like most other local inflammations, more frequently terminates by resolution. When suppuration takes place, it is always we believe at the expense of the usefulness of the kidney, though the other seems to carry on the necessary dupuration.

3042. This disease rarely destroys by itself; gastritis is generally produced and sometimes runs on to destruction. At

other times, though very rarely, it kills by inducing peritonitis. Danger is necessarily increased, if the disease attack both kidneys; as in this case, an entire suppression of urine takes place, which is almost sure to prove fatal in the course of a few days, by inducing cerebral irritation. Dr. Laing however mentions a case, where there was a suspension of nine days, without proving fatal. I attended a case with my friend Dr. Neil, of this kind, which proved fatal on the sixth day, the suspension being complete for four days. This patient appeared to die from cerebral congestion. We would therefore say as a general rule, that the more naturally the secretion of urine goes on, the less the risk. The discharge of blood, though always unwelcome, because always alarming, is not necessarily a fatal symptom; especially, in the commencement of the disease, and while the pain remains rather acute, and the pulse active. Indeed, in a late case, the free discharge of blood with the urine, seemed rather to afford relief. But if this occur after the sixth or seventh day, the pain having abated much, the pulse becoming frequent and feeble, we have much to apprehend.

Diagnosis.

3043. This disease is sometimes confounded with lumbago; but may be distinguished from it by its not being attended by a diminished quantity of urine, nausea, vomiting, disury, pain in the course of the ureters, and not having an increase of pain from motion, &c. It may also be mistaken for inflammation in the psoas muscle—in this however, there is this difference. In a psoas inflammation, there is much pain experienced by leaning the body forward; while in nephritis, it is always relieved; nor is the former accompanied by nausea and vomiting as the latter almost always is; nor does the psoas inflammation cause micturition.

Treatment.

3044. The case must be an extremely rare one, if it be not proper to draw blood in the commencement of this disease. We should therefore not only abstract blood early, but also freely.* It should be drawn pleno rivo, and if a disposition to

* "In suppressions of urine, whether merely inflammatory," says Cheselden, (Anat. p. 262,) "or from gout, or from an inflamed stricture in the urethra, I have found nothing so effectual as bleeding and purging. In a sanguine large man, where the penis was too much inflamed to pass the catheter, I took away three times twenty-four ounces of blood, and gave a purging clyster, and two strong purges, all within the space of twenty hours, which saved the patient, and delivered him from excessive torture."

faint manifests itself, so much the better. To insure this, is sometimes highly necessary, as it spares blood subsequently, by the disease yielding more readily. Indeed, we do very little sometimes, if we do not make a speedy impression upon the circulating system. The repetition of the bleeding must of course, depend upon the force and obstinacy of the disease. We should never however withhold the lancet, while the pain is severely lancinating, and the pulse active; we may therefore be under the necessity of repeating it iterum iterumque. But should the pulse not call for a repetition of the bleeding, yet the pain and other inconveniences persevere, we must deplete still further by either cupping and leeching, and this to be repeated if pain, fever, and a very sparing quantity, demand it. As a general rule, I prefer cupping to leeching. When either of these operations are resorted to, the abstraction of blood should be made from over the seat of the kidneys.

3045. During this time purging must not be neglected; and this may be pretty active. A calomel purge of eight or ten grains should first be given, and followed if it do not operate in three hours, by either of the neutral salts, or magnesia and salts, or castor oil. When there is reason to fear there is sand or gravel in the kidney, magnesia is the most proper purge after the calomel, and may, in combination with the sulphate of magnesia, be continued as long as purging may be necessary, or as long as it will be proper to call the bowels into action two or three times a day.

3046. Much relief is obtained sometimes, from moderately large enemata of rich flaxseed, or of slippery-elm bark tea. And when pain is urgent, after due depletion by the lancet, laudanum in flaxseed tea* may be given at bed-time. Warm applications over the region of the kidneys afford much comfort. And for this purpose, a large bladder partially filled with warm water; or a mush, or potato poultice, in a bag of linen or muslin, may be applied, and changed when too cool.

3047. Blistering has always appeared a very doubtful process—indeed, I never prescribe it in these cases, but at the same time I admit, prejudice may have something to do with their proscription, as several respectable practitioners approve their employment.

3048. The warm, and steam baths, have been recommended; and perhaps with propriety—but in the few trials we have made, we have thought the patient poorly rewarded for the trouble he is put to, in employing them.

* R. Tinct. Thebiac.	gut. lx.	Take Laudanum	60 drops.
Infus. sem. lin.	3ij	Flaxseed tea	2 ounces.
M. pro enema.		Mix for an injection.	

3049. During the whole treatment of nephritis, the regimen should be strictly antiphlogistic. Diluting drinks, as barley water, flaxseed tea, gum Arabic water, slippery-elm bark tea, should be freely indulged in. If pain remain in the kidney after the active stage of the disease, be passed away, the uva ursi in infusion, in the proportion of an ounce to the pint of boiling water, and this quantity used in the course of twenty-four hours, is often highly useful. The balsam copaiva is also very serviceable, when every vestige of inflammation is removed.

Chronic Nephritis.

3050. The acute state of the nephritis sometimes sinks into a chronic state; but it is not essential to the latter, that the other should have preceded it. Its etiology is almost the same, if we except such causes as are sure when applied to produce an active inflammation of the kidneys. We have already spoken of the acute form of nephritis, (p. 3034, &c.) which we believe is far from being as frequent as the chronic, though much more threatening, as well as much more severe—in a word, it is but in the intensity, and freedom from fever, that the one differs from the other.

Symptoms.

3051. If we abstract the condition of the arterial system, we shall find but little difference as regards the most prominent symptoms, between the acute and chronic nephritis. We shall therefore not repeat, what we have said at page 633, et seq., par. 3034, &c. We may however add here, that the chronic is not necessarily the result of a preceding acute nephritis as intimated, (par. 3050,) above. The chronic form of this disease often displays itself in form of a colic, and which lays claim to the particular epithet, "nephritic colic." This colic resembles the common spasms of the colon, and it is often mistaken for it; nor is it always easy upon a *first attack*, to distinguish the one from the other. The agony of the one cannot well be exceeded by that of the other. The same restlessness, tossing, and anguish, attend both; and the same gloomy forebodings, and hopelessness, are common to each—yet, there are marks, when the disease is really violent, which will serve to distinguish the one from the other, which we will now point out.

Diagnosis.

3052. The chronic nephritis may be mistaken for a common colic, or for the acute nephritis, especially the first, in a first at-

tack, if it be not violent; but in a second, or when the pain and irritation are really severe, much less obscurity will prevail. If the colic arise from some irritation in the kidney, there will be tenderness upon pressure during its continuance, over its region; and immediately after the abatement, or cessation of pain, there will be for the most part, a deposition of sabulous matter, or the expulsion of a piece of gravel of greater or less magnitude. The back, or lumbar region, will have a feeling of tenderness, or a sensation of having been severely bruised. In common colic, it is the abdominal parietes that remain tender after the cessation of pain. In nephritic colic, the testicle of the side of the affected kidney, is almost sure to be retracted. The vomiting which attends this form, aggravates the suffering; whereas in spasms of the bowels, it frequently affords relief, and sometimes puts an end to the disease. In common colic the urine is rarely affected; not so in nephritic colic—in this, it is sparing almost always; sometimes bloody, and occasionally is suppressed. The pulse is rather frequent, and sometimes intermittent, thread-like, and in one severe case, it was extinct for several hours. The chronic may be distinguished from the acute form of nephritis, by the absence of febrile movement, and a lesser intensity of pain, unless the paroxysm be excited by a mechanical irritation within the kidney; when this is the case, the suffering may be equally intense, but it will be unaccompanied by fever.

Prognosis.

3053. Much will depend upon the nature of the cause of chronic nephritis, as regards its issue. If it depend upon sabulous matter, this, as well as small portions of gravel, may be suddenly discharged, and every unpleasant symptom vanish, almost immediately. A respected, and valuable friend of the author's, is liable to severe and repeated attacks of nephritic colic. His sufferings are almost beyond human endurance—we have seen him dripping with cold sweat, and an extinct pulse for several hours together; and when he appeared to be in the agonies of death, he has suddenly exclaimed, while passing urine, "*I am well;*" and a portion of gravel would be sure to be found in the vessel. If however, a calculus should occupy the pelvis of the kidney or ureter, the sufferings are both extreme and long-continued, and the issue necessarily doubtful, as we have it not in our power, with any thing like certainty, to remove the cause. Nature, however, sometimes, contrary to all human calculation, relieves the patient, by expelling from the kidney the calculus, through the ureter and bladder; and from thence, through the urethra, without. We have known this to happen several times in the same

individual—and each calculus was larger than a common-sized pea. But notwithstanding the temporary success of each of these efforts, the worst and most gloomy apprehensions must be entertained, as there does not appear to be any certain means in the possession of art to prevent the formation of calculi, or any reason to have a positive reliance on the efforts of nature. We would therefore say, in a few words, that this disease is sure to entail much severe suffering, and often will eventually prove fatal. If, however, the sufferings do not proceed from a mechanical cause, the prognosis may be more favourable. For the disease may be overcome if attacked by proper remedies before structural derangement takes place. But should the kidney continue to be irritated, it may end in the formation of calculi; it may become tuberculous, and agreeably to some late pathologists, “the kidney may be transformed into a kind of sac which may fill the abdomen, and which may contain a variable quantity of urine. It may produce scirrhus, or cancer of the kidney, or bring on dropsy. Finally, it may give rise to irritation of the principal viscera, to marasmus, and death.”

Treatment.

3054. The same general plan of treatment laid down for the acute form of this disease, should be put in force in this; that is, leeching, warmth, fomentations, enemata, mucilaginous drinks, low diet, rest of body, and tranquillity of mind.

3055. But should the disease persist, notwithstanding the vigorous use of these remedies—that is, if pain continue, especially down the spermatic cord, vomiting persist, the testicle be retracted, the feet and legs become cold, and frequent micturition, we have strong reason to believe, that a calculus occupies the ureter.

3056. In this case, the bowels should be freely opened; laudanum enemata should be exhibited; the solution of the carbonate of soda should be freely drunk; the spirit of turpentine, or the Harlæm oil, should be given; and a strictly vegetable diet should be persevered in. In a case we have recently witnessed, a suppository of opium seemed to answer better than any other mode of exhibition of the opium, that we have tried. Six or eight grains, or even more, according to the emergency of the case, of powdered opium, should be made into the form of an elongated pill, with a rich mucilage of gum Arabic, and be permitted to dry. When sufficiently hard, it should be forced beyond the sphincter ani into the rectum, and allowed to remain—this may be repeated once in four or five hours if necessary.

3057. To prevent, however, a repetition of this afflicting com-

plaint, and especially if there be evidence of the presence of uric acid, a strictly vegetable diet should be observed; for agreeably to Magendie, this substance in lithic habits, is formed almost in proportion to the quantity of azote that is introduced into the system by animal food. A well-directed course of exercise should be persevered in, and especially of that kind that will gently and certainly put into action the muscles of the back—such as sawing of wood, plaining, shuttle-cock, or battle-door, &c.

3058. But should there be febrile excitement, exercise must be prohibited; the antiphlogistic plan must be resorted to, and thin diluent, mucilaginous drinks, be freely indulged in; and especially such as possess a slight diuretic power; as the infusion of the watermelon seed, or flaxseed.

3059. Should this disease be the result of repelled eruptions, or the drying up of long-established drains, the suppression of habitual hæmorrhage, as hæmorrhoids, epistaxis, &c. our attention should be immediately called to their re-establishment. For these purposes, stimulating applications, as rubifacients, should be applied to the deserted parts—if it be to recall repelled eruptions, the tartar emetic ointment will be found highly useful; if it be to open a dried up drain, as a seton, or an issue, fresh ones should be made; if it be to restore hæmorrhoids, the continued, but gentle use of aloetic medicines will answer best; if it be to restore a bleeding from the nose, the frequent snuffing up of warm water, and an occasional pinch of snuff, will generally succeed.

SECT. IX.—DIABETES.

3060. There are no organs of the human body, whose actions are modified by so many causes as the kidneys; or whose products are so varied by such causes. Thus we find, that passions or emotions of the mind; exercise or rest; age, sex, temperament; drinks, food, medicines, temperature, climate, secretions, excretions, all have an influence upon the quantity, the nature, and appearance of the urine. Some of these causes, change the constituent parts of this fluid; others alter its sensible qualities; others augment, or diminish, its quantity; while others, seem but to affect only its colour. But be the change what it may, it is sure to depend upon some alteration, or peculiarity of the secretory action of the kidneys themselves. Thus the constituent parts of the urine are changed in many instances with surprising promptness, as the person may live upon animal, vegetable, or a mixed diet. A strictly animal diet, increases always, and sometimes seems almost to generate, the uric acid, by the quantity of azote furnished by this diet—the vegetable, destroys or prevents, this

acid; while a mixed one, will qualify the quantity of this article in the urine. The sensible qualities are also changed; thus the smell of the urine after eating asparagus, is altogether different from that of the plant from which it is derived; and, after the use of turpentine, it is that of violets. The colour of the urine, is varied by a great variety of substances, as well as its constituent parts. The serum of the blood in diabetic subjects, does not yield the sugar, that the urine is found to possess in such patients, &c. All this shows how many causes may operate upon these organs to alter their natural or normal condition—to urge them to excessive secretion; to diminish it below the healthy standard, or to suppress it altogether. But besides the general causes just enumerated that affect the action of the kidneys, they are also liable to affections peculiarly their own, and arising from their proper organization and functions, so that they may well be said to be the most mutable organs of the body.

3061. The disease called diabetes, was known to the ancients but very imperfectly; for until about the time of Willis, (Cullen,) the sweet quality of the urine in this disease, was not pointed out—hence, every inordinate discharge of this fluid was called diabetes; and hence the imperfect definitions of this disease. All the ancient writers make this disease to consist in the discharge of more urine than of the fluids drunk. Even Van Swieten does not mention the sweet state of the urine, though he describes two kinds; “one wherein a great quantity of thin urine is discharged, equalling or even exceeding the drink taken in: the other is indeed an increased quantity of urine, but at the same time the thicker humours escape with it. The latter is commonly with more propriety termed a diabetes by physicians, namely, a frequent and copious discharge of a milky or chylous urine. This distinction has already been given by Celsus, who divides too great a profusion of urine into thick and thin.”—*Comment. Vol. VI. p. 151.*

3062. It is evident from this account, that the diabetes mellitus as such, was unknown even to Van Swieten; though both he, and his predecessors, were aware, that the colour and thickness of the urine in diabetic patients, were not always the same; but apparently attributing more danger to such discharges of urine, as had the chylous appearance, than that which was transparent and almost colourless, though it may have been the genuine diabetes mellitus. Indeed Cullen himself, has passed this distinction with surprising indifference, as in his definition of this disease, he does not look upon it as essential.

Definition.

3063. Diabetes is an immoderate flow of *fluids** from the kidneys; the quantity discharged by the urinary organs, exceeding in weight, the whole of the ingesta, and holding in solution a quantity of sugar, sufficient to give it a decided sweet taste; for the most part it is perfectly transparent; of a slight yellow hue, resembling in colour a solution of honey, which, together with its peculiar sweetness, gives this disease the distinctive name of diabetes mellitus. An unquenchable thirst accompanies this affection through the whole of its progress, and commences generally even before the kidneys secrete inordinately. The skin is dry and husky; sometimes scaly; extreme emaciation; and slight chronic fever for the most part—its duration uncertain; sometimes killing in two or three days; at other times continuing for months or even years.

Division.

3064. Authors have divided this disease into two species; 1. into diabetes mellitus; and 2. diabetes insipidus. We observed above, that Dr. Cullen had not thought proper to add the honey taste to his definition of diabetes, though he has named it to distinguish a species; but by so doing, he gives the idea, that the sweet taste of the urine, is not absolutely necessary to a genus, that we think has no species. For a mere increased secretion of urine, does not constitute diabetes; for were this the case, we should confound certain symptomatic affections, with an idiopathic form of disease—as in hysteria, gout, fear, excess of wine, teething in children, &c. We shall therefore confine our present views to that form of diabetes, in which the discharge from the kidneys has a sweet taste; but were we disposed to make a division of this subject, it would be into the acute, and chronic. But as this would not answer any good practical purpose, we shall forbear to use the distinction—for, the first, or acute form, runs its course with such rapidity, that any remedies that we are at present acquainted with, would be exhibited in vain.

Symptoms.

3065. One of the first symptoms, if not the very first, is a sudden dryness and thirst, that becomes very quickly almost in-

* We have chosen in this definition the term "*fluids*," in preference to that of *urine*, because the discharges from the kidneys, of diabetic patients, have none of the common properties of urine, except its being the product of glands, that in their normal state secrete this fluid. But while the kidneys are labouring under the diabetic action, they are forced to yield a new fluid, but which is not urine by analysis.

supportable. Indulging it by drinking scarcely affords a temporary relief, for it is importunately demanded so soon as the patient ceases to swallow. In general the discharge of urine if so it may be termed begins, soon after drinking any quantity of fluid; at other times, the flow commences at the time of drinking. The patient complains sometimes as if cold water were running from the back towards the bladder; gastrodinia; a burning in the stomach and bowels; a pain in the feet and calves of the legs. The patient in addition to his tantalizing thirst, is also beset with a voracious appetite, which the regimen to which he is subjected but ill satisfies; especially, as it rather augments as the disease advances, or at least until fever makes its appearance. After fever has confirmed itself, the patient for the most part, pretty rapidly declines; the pulse becomes frequent, feeble, and soft; debility increases daily; in a word, the febrile heat and other symptoms regularly exacerbate towards evening.

3066. The lips, the tongue, and throat, become very dry, though smeared by a tenacious mucus, or a frothy spittle; the voice fails and becomes husky. But notwithstanding the tongue may preserve its moisture natural to it, or is frequently wetted by the often use of drinks, the thirst diminishes none. Indeed, the thirst is more importunate in diabetes than in the most ardent fever.

3067. The urine at this time, though pale, serous and clear, is nevertheless furnished with sugar, and which may be detected not only by the taste, but by evaporating a portion of it to nearly a state of dryness—when arrived to this state, or consistence, it resembles honey or brown sugar; and when properly treated for this purpose, a pure sugar can be obtained. If this inspissated substance be exposed to the air, it quickly undergoes the vinous and acetous fermentation. We are told by Frank, that pure crystals of sugar have been obtained from this material, and that eighty pounds of the urine have furnished twenty-six ounces of sugary substance; and others are said to have obtained even a larger quantity.

3068. The progress of diabetes is generally slow; in some instances, as we have already observed, it will continue for years. The acute form of this disease is still more rare than the chronic. In a case that fell under the care of Dr. Chapman, it proved fatal in the course of six-and-thirty hours; during its continuance, many gallons of fluid were evacuated.*

3069. During the night, the discharge is more abundant than during the day. The nights of the patient are nights of misery—

* Roche and Sanson, (Vol. II. p. 121,) state that two hundred pounds have been evacuated in twenty-four hours, or twenty-five gallons.

for so excessive is the thirst, so harassing is the dryness of the fauces, and so importunate is the desire to make water, that the patient can scarcely shut his eyes, much less can he sleep. Debility creeps on apace; the dryness of the skin becomes extreme; emaciation increases; œdema spreads over the feet and back; ascites and diarrhœa follow; and death, soon after, closes the scene.

3070. The state of the blood when drawn, presents an appearance not generally anticipated—namely, the inflammatory crust. The serum, agreeably to some, has a sweetish taste; but this is denied by others, and we believe with reason—at least it seems to be more generally admitted, that it is free from this taste; which renders the phenomena of this disease still more interesting, as it gives to the kidneys the power of generating this saccharine matter. Frank says a case of diabetes is recorded, but does not indicate where, that alternated with a salivation from the mouth; but laments, that it was not determined whether the product of the salivary glands was sweet. We also lament this, as it would have determined an important fact, especially if the serum of the blood had also been tested in this way.

3071. Males are more subject to diabetes than females; and it is more common with old subjects than young men. Frank mentions a case, the subject of which was but eighteen years—we have known it to attack in one instance a gentleman who had passed his eightieth year.

Proximate Cause.

3072. What shall we say upon the subject of the proximate cause of a true diabetes—a point upon which all seem to confess their ignorance. Laxity, debility, paralysis, spasm, calculi, &c. of the kidneys, have each been the assigned cause of this disease; but there is as much reason, perhaps more, to believe, that either of these conditions of the kidneys may be the effect, rather than the cause. Passions and emotions of the mind, the deranged state of the stomach, the bowels, the liver, the lungs, changes of air, &c. have all been looked upon as the remote causes, and have been resorted to, with a hope of explaining this mysterious disease; but with no better reason or success than the other enumerated causes.

3073. Dr. Ayre looks upon diabetes as a chronic inflammation of the kidneys; Dr. Johnson thinks it cannot be attributed to the deranged condition of any one particular organ, the whole system being implicated; while Dr. Barry attributes it to the condition of the fluids themselves. This discrepancy shows the little progress our knowledge of the cause of diabetes has made, when

scarcely two pathologists agree upon any one of those heretofore assigned.

3074. Several gentlemen, (as Wollaston, Granville, Nicholas, Marcet, &c.) have attempted to throw light upon this subject, by attempting to ascertain the chemical properties of the fluid passed off, as well as that of the serum of the blood of diabetic patients. And they appear to have ascertained a very interesting and curious fact upon this subject—namely, that the product of the kidneys furnish sugar, and that the serum does not; which, if true, prove, that the sugar is formed by the action of the renal vessels during the act of secretion. How, or by what peculiarity or change in their action, this new product is formed, will always perhaps remain beyond our powers to ascertain, however certainly we may be able to determine that more than a certain alteration in the condition of the system may be necessary to produce it.

3075. Though we do not feel ourselves satisfied with any hypothesis hitherto advanced to ascertain the proximate cause of diabetes, we cannot but admit that the one offered by Dr. Eberle is as satisfactory, and perhaps more ingenious than any we have met with. We shall therefore give his own words upon this subject. See Eberle's Practice, Vol. 2. p. 372.

3076. "Whatever may be the essential nature of diabetes, or the primary seat of the disease, it appears quite certain, that the proper functions of the kidneys are greatly deranged or perverted in this disease. That this is the case we can admit of no doubt, when we advert to the circumstance, that according to the experiments of Nicholas, Granville, and Wollaston, the serum of diabetic blood does not contain a particle of sugar. Its presence in the urine can therefore only arise from a perverted secretory action of the kidneys; and whatever may be the immediate cause of the functional derangement of these glands, its existence must be regarded as the proximate cause of all the characteristic phenomena of the disease. Another pathological condition, though less demonstrable than the former, is, I conceive a peculiar condition of the blood, which may perhaps exist as the immediate cause of the perverted renal action. That the constituent elements of the blood are not such as they are wont to be in health, is rendered probable by the effects which the different kinds of aliment have, both on the saccharine quality, and quantity of the urine. If by an exclusive use of animal diet, the secretion of urine becomes less copious, and its saccharine character disappears, the inference naturally is, that by this kind of food the elements of sugar are reduced in the blood, and consequently less abundantly combined by the perverted action of the kidneys. In health there is always more or less *urea* secreted by the kidneys, but

in diabetes, this peculiar urinary compound is rarely formed in any appreciable quantity, and very often none at all. When we take into view the close chemical analogy which exists between this substance and sugar, it appears extremely probable that the urea which is secreted in health, is, in diabetes, converted into sugar by the perverted action of the kidneys. According to the analysis of Prout, for instance, urea and sugar are composed of the following constituent elements.

<i>Urea.</i>				<i>Sugar.</i>			
6.5	Hydrogen	-	-	6.5	Hydrogen	-	-
20.5	Carbon	-	-	40.0	Carbon	-	-
26.5	Oxygen	-	-	54.0	Oxygen	-	-
46.5	Azote	-	-		Azote	-	-

3077. "Thus the absolute quantity of hydrogen, in a given weight of sugar and of urea is precisely the same; while the quantities of carbon and oxygen of sugar are just double those of urea. From all this it would appear probable that diabetic blood is deficient in azote, in consequence of which the kidneys are not furnished with a sufficient quantity of this element to form *urea*, of which it constitutes a large constituent part; and therefore sugar, which contains no azote, is the result of the renal action. This idea, first started I believe by Wollaston, is rendered still more probable by the effects which an exclusive animal diet has in reducing the quantity of sugar in the urine and increasing the formation of urea; for the large proportion of azote which animal food furnishes to the blood, supplies this element in sufficient proportion for the formation of *urea* by the kidneys, in consequence of which the secretion of sugar is either much diminished, or wholly arrested. From these observations it is quite probable, as I have already stated, that the blood itself in this disease, is defective in the regular proportions of its healthy constituent elements. But here we are necessarily led a step further in our inquiries into the pathology of this malady. What is it, namely, that causes this defective or *innormal* condition in the composition of the blood? We can think but of one cause; and that is, a defect in the digestive, but more especially of the assimilative functions of the system. Thus, then, it would appear that diabetes is a disease by no means local or confined in its pathological state—but on the contrary one, in which the digestive and assimilative functions, the state of the blood, and the particular functions of the kidneys, are all deeply and essentially implicated."

3078. "After all our views concerning the pathology of this mysterious disease, are as yet in great measure conjectural. In this uncertain state of our knowledge, therefore, I may be allowed

to throw out a conjecture on this subject which must be left for future inquiries either to refute or confirm. It is well ascertained, that the bile contains a very considerable portion of saccharine matter, called *picromel*. May not a morbid condition of the liver, by which this constituent of the bile is prevented from being formed, give rise to the vicarious secretion of a similar substance by the kidneys, and thus produce diabetes? An accurate analysis of the bile of a diabetic patient, would throw much light upon this point; and until this is done, it must remain entirely hypothetical."

3079. Frank mentions an instance, in which the urine of a consumptive patient was highly charged with saccharine matter—this was so abundantly so, that two pounds of the fluid yielded six ounces of sugar. Whether this is a solitary instance of the kind, he could not say, as he never repeated the experiment. In this case however, the urine was not more abundant than ordinary, seeming to prove that the augmented quantity of fluid in diabetes does not exclusively depend upon the kidneys furnishing the saccharine principle. It might be well for some accurate chemist to undertake the analysis of the urine of phthisical patients.*

Anatomical Characters.

3080. "The kidneys are at times found red, and unusually large; at others they present a remarkable degree of flaccidity; their vessels are occasionally considerably distended with fluid, dilated, and easily torn; in other instances their substance has suffered a sort of disorganization or solution, more or less complete. Again they have been found smaller than natural." *Martinet's Manual of Pathology*.

3081. In a case that fell under the care of Dr. Baillie, "the veins upon the surface of the kidneys, were much fuller of blood than usual, putting on an arborescent appearance. When the substance of the kidney was cut into, it was observed to be every where much more crowded by blood-vessels than in a natural state, so as in some parts to approach to the appearance of inflammation. Both kidneys had the same degree of firmness to the touch as when healthy; but I think were hardly so firm as kidneys usually are, the vessels of which are so much filled with blood."

3082. Dr. McIntosh says, "I have seen two dissections in

* Dr. McIntosh says, "a curious fact may be mentioned, which was first stated by Cheselden, and is mentioned at page 139 of his anatomy; viz. that sweet urine is sometimes secreted in cases of chronic carbuncle." I have searched for this statement, but cannot find it in the Ed. of Cheselden I possess.

which the kidneys to all appearance were in a healthy state, and in which the lungs, and the mucous membrane of the stomach, and a great portion of the bowels were diseased; the former being tuberculated, and the latter vesicular; the vessels gorged with dark blood, and the membrane itself soft and pulpy." Mr. Cruikshank, says the arteries of the kidneys are generally enlarged in this disease, particularly those of the cryptæ or minute glands, which secrete the urine.

Pathology.

3083. The pathology of diabetes, Dr. M'Intosh has reduced to the four following heads:—"1st. Upon a morbid condition of the stomach, or other viscera connected with the assimilation of the blood, and chylication. 2d. On the imperfect animalization of the blood. 3d. Upon a retrograde action of the lymphatic vessels. 4th. Upon a morbid condition of the kidneys themselves." To all and each of which, so many exceptions may be urged, that neither can be considered as the true cause of diabetes. And I shall conclude my observations upon this point, in the words of Dr. M'Intosh, as they every way declare my own experience in this disease. "It is difficult for me to form any pathological opinions from the discordant facts which have been recorded respecting this disease, having had no opportunity of investigating the matter with the advantage of a knowledge of what has been done by others. Guarding myself, however, against the effects of the special pleading of many writers on this subject, I cannot help coming to the conclusion, that the truth may lie between the two extremes;—that pathologists have been too anxious to attribute the disease to one particular organ;—and that those who object to the view, that the kidneys are the seat of the disease, have probably expected to find some very uncommon disorganization or vascular turgescence. I am inclined to believe, that diabetes is a functional affection of the kidneys, produced by circumstances which rarely exist, otherwise the disease would be of far more frequent occurrence; and that we may look for that combination to the functions of the stomach, and other organs connected with digestion, and also to those of the lungs; and if this be admitted, there can be no difficulty in perceiving that the constitution of the blood must suffer some alteration, and that the functions of the nervous system must likewise be considerably embarrassed." *Practice of Physic, Vol. II. p. 285.*

Prognosis.

3084. The prognosis in this intractable disease, must almost

necessarily be unfavourable. The number of deaths from this disease, very far exceed the recoveries—yet cures have been effected, which should prevent entire despondence. Frank tells us he succeeded in two instances; but in one a relapse took place, which carried the patient off—the other returned home apparently in good health. We know of but one instance of recovery of this disease in this place. It is now several years from the first attack; but the patient is obliged to adhere to the very strictest diet of animal food, or he is immediately threatened with a return of this affection—in this instance, the disease may be considered as being merely kept in subjection, rather than cured. The disease is of more easy management in young persons than in old; and if complicated with other affections, the prospect of success is still more diminished. In a word it is one of those diseases in which the practitioner should never promise success.

Treatment.

3085. The pathology of this disease is so little settled, or understood, that almost every practitioner will be governed by the views he has taken of its nature. Such as believe it to be a disease of debility, will give tonics, and other stimulants; while those who look upon it as essentially inflammatory, will bleed, and use other antiphlogistic means. Dr. Watt of Glasgow, bleeds repeatedly in this disease, and he has been imitated in other parts of Europe, as well as followed here. There would appear stronger evidence in favour of this practice, when accompanied by a diet absolutely animal, than any other hitherto proposed; and the only instance of cure of this disease, if the case mentioned above can be considered a cure, was managed in this way. But in employing venesection, we must in this disease as well as in every other, be governed by the state of the system, as we have constantly inculcated throughout this work. For to treat every case of diabetes by blood-letting, would be to resign all distinction, and embrace empiricism in its greatest latitude. While on the other hand, it would be equally preposterous and injurious, if debility be considered the proximate cause, to neglect the indications, which a full, tense pulse, present, and confine the treatment exclusively to tonics and stimulants.

3086. We however should be cautioned against the hasty conclusion, that the pulse in diabetes does not present the firmness or fulness, that would justify the loss of blood, by making an appeal to a case related by Dr. Watt. In this case the pulse was not only slow and irregular, but was also feeble. The strength

of the patient was greatly prostrated; the lower extremities cold and oedematous. The blood when drawn was very dark, with a pitch-like crassamentum, and altogether deprived of its natural tenacity. Yet in this case Dr. Watt freely employed the lancet. This operation was repeated no less than six times—and on the fourth bleeding, the blood began to show some change; the crassamentum had become dense, and its surface had a buffy coat. On the fifth bleeding, the sizzly appearance on the crassamentum became contracted to the size of a shilling; at the sixth operation this was still firmer, and the serum was found of a milky appearance. The patient experienced relief after each bleeding, and eventually recovered with difficulty.

3087. In Magendie's Journal, (for 1828,) there is a case related also of recovery after bleeding, and a strictly animal diet; together with the use of limewater and milk, and the hot bath every evening. Dr. Ayre, (par. 3073,) warmly recommends leeching over the region of the kidneys, and regards it as a very effectual mode of treatment. This recommendation however arises from the fortunate result of a single case. Cupping might be substituted for leeching, where the latter may be difficult, or indeed it might in our opinion even merit a preference. What would be the effect of caustic issues over the seats of the kidneys?

3088. Dr. Ferriar relates a case, which was successfully treated by the use of bark and elixir vitriol; hence tonics have been employed. Dr. Warren recommends opium; and Dr. Prout considers it the best remedial agent, especially in the form of Dover's powder. Dr. Prout gives some curious facts on the power of opium upon the specific gravity of the urine—increasing it at first, but eventually it is restored to its natural density. The muriate of iron has been extolled; so has alum by the German practitioners. Uva ursi in combination with Dover's powder has been successful it is said. Dr. Trotter has praised magnesia; and it has been considerably employed by the British physicians. Emetics, it is declared has been useful; especially the ipecacuanha. So also carbonate of ammonia; the ammonia sulphuratum. Blisters over the region of the kidneys—*sp. tereb.*, mercury, flowers of zinc, cuprum ammoniacum, digitalis, and a hundred other articles of the materia medica have been resorted to, tried, and praised; repeated, and condemned; all only showing the uncertainty of any mode of treatment hitherto proposed; and the necessity of seeking other means, to arrest this obstinate disease. Dr. Sharkey recommends a drachm of the phosphate of soda, every morning noon and evening—he declares he has seen decided advantage from this, even after the plan of Rollo had unavailingly been pursued.

Regimen.

3089. However discordant the views of physicians may be in regard to the proximate cause of diabetes, and the mode of removing it, they are nevertheless pretty unanimous in recommending an entire animal diet in diabetes mellitus. As far as our own observations have extended, (but we admit them, limited,) this kind of diet is the only one, that has given check to this disease. Almost any of the fresh animal substances may be selected—as beef, mutton, lamb, poultry, game, eggs, or oysters and fish. The best drink, plain water. Early hours, and early rising; regular exercise, on foot especially, and without fail; the feet well protected against damp or moisture; flannel next the skin, and decidedly warm clothing.

SECT. X.—ENURESIS, OR INCONTINENCE OF URINE.

3090. The action of the bladder in its healthy state is almost always under the controul of the will; yet such is its nature or œconomy, that it is pretty sure to force the will to its purpose, whenever it becomes distended beyond a certain degree. This wholesome warning is, however, sometimes neglected beyond proper endurance, by which severe penalties are sometimes inflicted, in consequence of the excessive distention to which this want of obedience to its dictates, (if we may term the desire or call to pass water,) necessarily subjects this organ; for if this be carried beyond a certain point, the will loses its influence over the sphincter, or this part becomes deprived of the power to obey it, however anxiously or powerfully it may be exerted. When the necessity to empty this viscus arrives, it gives warning, and is for the most part obeyed—or is for a while delayed with impunity, as necessity, convenience, or decency may exact. In this respect man differs from every other animal; for none but he disobey this importunate call, beyond the moment it is felt, if the animal be left to its own direction.

3091. The frequency of the necessity to void urine, will very much depend upon the nature of the aliment and drinks of the individual; upon exercise, and last, though not least, *habit*. There is an error, not very unfrequently committed, under the persuasion that we should never neglect to pass urine the instant the inclination for this purpose is felt—for when this kind of obedience is too much indulged, a preternatural sensibility is created in the bladder, and it becomes uneasy to discharge itself, before it is half filled; and this to the great annoyance of the individual who has invited this habit. It is well known to every

body, that many causes tend to produce the inclination to make water, besides the quantity of urine within the bladder—this happens sometimes, even a few minutes after the bladder has discharged itself; and were this sensation to govern, this morbid sensibility or irritability just spoken of, would soon be generated. The author is acquainted with several gentlemen, who labour under this self-imposed inconvenience, and who informed him it was induced under a persuasion that the inclination to pass water should, when practicable, instantly be obeyed.

3092. This, it is true, may be the minor evil, when compared with mischief that might arise from neglecting too long the call for this evacuation, for death itself may ensue—but we would advise, that neither of these extremes should be wantonly indulged. We may however in many instances so regulate this discharge, as not to incur either of the penalties just named; by not yielding to the sensation at the neck of the bladder, when we know that the inclination for its discharge does not arise from fulness; and consequently, that no mischief can ensue, by a temporary and well regulated delay.

Definition.

3093. Frank defines enuresis “an involuntary flow without pain, of either sound, or morbid urine, through the urethra or other passages.”

Species.

3094. The character of this complaint is very various. Sometimes the urine escapes involuntarily and without the consciousness of the patient—this is the *complete enuresis*. At other times, it flows without giving sufficient warning of its presence, and while the patient is preparing to pass it—this is the *incomplete enuresis*. At others, it only takes place during sleep—this is the *nocturnal enuresis*. It may depend upon some anormal condition of the bladder itself—this constitutes the *idiopathic enuresis*. It may arise from affections of parts not immediately connected with the bladder—this is the *symptomatic enuresis*.

Diagnosis.

3095. This complaint cannot well be confounded with any other—it is only for diabetes or dysuria, that it can be taken; and from these it can be so easily distinguished, that nothing but downright ignorance would mistake the one for the other. In enuresis, the quantity of urine voided is vastly less, nor has it

the sweet taste of that of diabetes. It is not accompanied by any unusual thirst, or emaciation of the body—it is said, however, these two diseases have been associated. (Frank.) From dysuria it may be distinguished by the pain and heat which attends this complaint, when the urine is passed.

Symptoms.

3096. The symptoms attendant upon this disease, may be collected from what has already been said—but in addition to this, we may add, that the person thus afflicted, is not only subject to all the inconveniences attendant upon this weakness, but also to the consequences of it. The almost impossibility to prevent the clothes from becoming imbued with the escaping urine, creates an almost insupportable odour from its stagnation in them; and thus unfits them, almost altogether, from mixing with society. Erosions of the genital organs and perineum quickly supervene, to add new horrors to this disease, and thus to render the life of the individual wretched, beyond belief. It is true, however, that every species we have enumerated, is not equally afflicting, or equally difficult of management, as we shall see presently.

Causes.

3097. A partial palsy, or that which confines itself to the sphincter of the bladder, or a more general one, as in paraplegia and hemiplegia. Frank says, that a weakness, or relaxation of the pseudo-sphincter,* is the cause many times of enuresis. An exalted sensibility of the bladder, negligence in not properly regulating the calls to pass urine, dreams, and bad habits, generated by bad nursing. A fall upon the perineum, a wound, a prolapsus of the rectum, or a hernia of the bladder, cutting for the stone. In females, tedious and ill-conducted labours, instrumental delivery, or the head of the child remaining at, and occupying too long the lower strait of the pelvis.

3098. Either of the circumstances just enumerated, may cause the disease in question, by enfeebling, or tearing the fibres con-

* What Frank means by the pseudo-sphincter of the bladder is, we believe, nothing but the levator ani; for the whole bladder is surrounded and covered with this muscle. The neck of the bladder passes through a slit in its fibres; and while the levator ani is acting, this slit is drawn, as it were, round the neck of the bladder, and thus for a time prevents the urine from flowing—it is to this arrangement that the urine and fæces do not pass at the same moment; and it will therefore be easily perceived, that any injury done this muscle, may very much influence the action of the bladder, may readily produce the incomplete enuresis.

stituting the neck or sphincter of the bladder; and it would appear, from what we can gather upon this subject, that to produce enuresis, requires some local lesion or imperfection of this part, if we except perhaps the enuresis of habit—mere general debility unaccompanied by cerebral disturbance, does not appear to be sufficient.

Complete Enuresis.

3099. This species of enuresis, (par. 3094,) is most frequently found among old people, and such as are afflicted with paralysis, or have a strong tendency to it; or such as have some affection of the brain itself; the spinal marrow, or simply, of the nerves which enter into the composition of the neck of the bladder. The latter, strictly speaking is of rare occurrence; for the nerves just spoken of are seldom affected alone; those going to the other portions of this body, are almost always implicated—in this case, a palsy of the bladder may be the consequence, and may thus sometimes produce rather a retention of urine, than enuresis.

3100. There may however exist, some local cause, which may by its mechanical agency produce this partial paralysis; as tumours in the vicinity of the bladder; caries or exostosis of some portion of the lumbar column, &c. Some have ranked certain mechanical injuries to the bladder itself among the causes of the complete, or enuresis paralytica, as those specified in par. 3097; but we believe, that neither of these causes produce a *paralytic* condition of the parts concerned—they produce this disease, by a destruction or injury of the normal condition of the parts concerned in retaining the urine, and this may consist of even a loss of substance at the neck of the bladder by sloughing; or it may be simply a rent or wound without the loss of substance, the sides of which will not meet so as to heal.

Prognosis.

3101. This species of enuresis is rarely cured; though the paralytic condition of the neck of the bladder in itself, is rarely dangerous; yet it is from its permanency, one of the most vexatious, and loathsome diseases that the human body can be afflicted with. When the disease arises from “medicable” local causes, it may however, sometimes be removed—but the chances are always unfavourable; as long pressure upon the nerves of the part, may so injure their functions, that all future usefulness is destroyed.

Incomplete Enuresis.

3102. This species of enuresis, (par. 3094,) generally arises from a morbid increase of sensibility and irritability of the internal membrane of the bladder, and occurs to such as encourage the too frequent discharge of their urine; and to those who are not sufficiently guarded upon this point, and of which we have already spoken, (par. 3090.) In the one case, so morbid an irritability is created, that the bladder will scarcely retain a drop of urine within its cavity; in the other, having been once over-stretched, it also becomes too sensitive, and will resist distention when it is attempted to be carried beyond a certain point—consequently, in both cases, the urine will escape from the urethra, but in different quantities. In the first the urine will escape from the urethra almost guttatim; in the second, it will be forced from the bladder very often, and this in spite of every suggestion of the will to the contrary.

3103. The urine sometimes acquires an unusual degree of acrimony, by holding in solution certain substances, either not natural to it, or if natural, in too abundant a quantity. In this case, the bladder is provoked to discharge itself more frequently than is useful to its healthy œconomy; but this rarely amounts to enuresis or even to dysury, unless a habit (par. 3090,) is generated of frequently voiding the urine, and thus increasing the irritability of its neck.

3104. Frank says, he has known this kind of inconvenience perpetuated to all the children of certain parents, who were of a gouty, or scrofulous habit. He gives a very interesting account of a girl belonging to this family, whose enuresis was cured contrary to all hope, the instant she began to menstruate.

3105. It may also be observed as a fact of some importance that such persons as are liable to calculi of the kidneys, have the bladder to become preternaturally irritable and cause a very frequent discharge of urine. Rheumatism, where it is habitual, or long chronic; or a catarrh of the bladder, will also sometimes give origin to enuresis. It is also said, that hydatids within the bladder, and ascarides in the rectum, or even according to some in this organ itself, have caused this disease.

Prognosis.

3106. The prognosis in this form of enuresis is more favourable than the preceding, as several of the causes with proper attention may be removed, as will be noticed when speaking of the treatment of this disease.

Nocturnal Enuresis.

3107. This species of enuresis, is almost always in its origin confined to childhood; and if it be perpetuated, it is most frequently by habit. The commencement of this complaint, may be dated from bad nursing, or from a want of attention to the manner or periods at which this important evacuation is performed. Thus we find extremely few cases among the children of cleanly people, or such as can bestow sufficient attention to their children, to form proper habits. The laborious, or negligent woman, places her child in a bed or cradle, and causes it to lie there many hours together. During this period, the child passes its water without restraint, and is never perhaps, educated in proper habits, as regards the passing of its urine. Accustomed to pass its water while in bed, it will be sure to continue this habit even when the practice is partially interrupted, by its being kept upon its feet during the day—for, with the bed, he associates his former practice; and from sheer habit continues to yield his water during the night. Where this habit is completely established, it is not necessary that dreaming of the act should take place—at least we have interrogated a number of patients upon this point, and they almost all declare they are not aware that they dream of the necessity of passing their water. As far as our inquiries on this point have gone, we have been led to the conclusion, that with such as dream of this act, the habit of wetting the bed is not so confirmed, and is of more easy management; for it is not every night that this takes place; and a little attention to the quantity to be drunk in the evening, will in many instances prevent the occurrence. In some instances, this form of enuresis is purely accidental—that is, the patient may have drunk of more watery fluid than his usual wont, and have neglected to empty the bladder before getting into bed; the bladder of course becomes filled to an uneasy degree, which acts upon the sensorium, and a dream of passing water is almost sure to ensue; and with the imaginary flow, the absolute takes place.

3108. Dr. Prout is of opinion, that nocturnal enuresis frequently is associated with a lithic diathesis, especially in “young females with constitutional irritability and weakness; and in old people, this affection is associated almost always, with some organic, or other affection of the neck of the bladder, or prostate gland.” He is of opinion also, that when water is passed under the influence of a vivid dream, that the urine in such cases, is generally found to yield upon settling, a gravelly deposit. This however, nor the other opinions of Dr. Prout just named, do not comport with our own experience. This detestable habit, agreea-

bly to our own observations, is much more frequent in the boy, than in the girl; and the black children are particularly prone to it. Where the urine is passed in the night, without being attended with the slightest consciousness, it is of much more difficult management, than when accompanied by consciousness.

Prognosis.

3109. This form of enuresis is frequently susceptible of remedy.

Idiopathic Enuresis.

3110. This form of enuresis, will depend upon an anormal condition of the bladder itself; thus a thickening of the parietes of the bladder from stone; a scirrhus condition of them; ulcers of the internal face of this organ; fungous excrescences; polypus; abscess, &c. All these causes are calculated to prevent the regular stay of urine within the bladder, by preventing its regular contraction, or by weakening the power of the sphincter; in either case, the urine will be prevented from tarrying the proper time in the bladder.

Prognosis.

3111. The prognosis of this form of enuresis, must necessarily be unfavourable, as the affections themselves which give rise to the disease, are for the most part, incurable.

Symptomatic Enuresis.

3112. This form of enuresis originates from the bladder sympathizing with other portions of the body while labouring under disease. Thus a cancer or scirrhus, a dropsy, tumours, or polypus of the uterus, may cause this species of enuresis; pregnancy, scirrhus of the intestines, mesicolon, vesicule seminales, &c. &c.

Prognosis.

3113. The chance of relief in this form of enuresis, must necessarily depend upon, 1st. The curability, if we may use such a term, of the original disease; and 2d. Upon the extent and nature of the secondary affection in the bladder itself.

Treatment.

3114. The treatment of enuresis must be necessarily as diver-

sified, as the species themselves. Some of the causes of this complaint may occasionally be removed or destroyed, while others we are bound to confess, are beyond our reach. Thus in the first form of this complaint, we may now and then succeed in removing the torpid condition of the nerves that supply the bladder, by moxa, blisters, tartar emetic ointment, or other rubefacients applied to the spine; or by the extract of the nux vomica, spirit of turpentine, or the tincture of cantharides, given internally—but what will relieve this affection when its origin is in the brain! Mr. Lair recommends touching the prostatic extremity of the urethra and neck of the bladder with the tincture of cantharides by means of a catheter—he declares he cured three patients by this plan. Dry cupping the perineum and sacrum have also been found useful.

3115. In the second form, the habit which gives rise to the excessive irritability of the bladder must be given up, or diminished as much as possible; and its effects remedied, as far as may be practicable, by such remedies as are known to diminish this state in the general system. Tonics will sometimes answer admirably well; especially when aided by the cold bath. Opium however we believe, is the best general remedy; and this used in the form of a suppository. The best mode of forming these, is, by working up the proper quantity of opium with a sufficient quantity of rich mucilage of gum Arabic, and allowed to become hard.* One of these suppositories should be used every night, certainly, and oftener if necessary.

3116. In the third, which is for the most part purely a disease of habit, every care must be taken to interrupt it. This must be attempted, First, by making the patient keep up at night, as late as is compatible with his health. Second, prevent his taking any fluid article after his dinner; especially tea or coffee. Third, oblige him to make water the last thing before getting into bed. Fourth, give him a hard mattrass to sleep on, and a sufficient quantity of bed-clothes, that his skin may not become cold during the night. Fifth, oblige him to rise early in the morning, and not to indulge in a morning nap, unless he have passed his water upon waking. Sixth, make him abstain from all substances that will afford much fluid in the stomach and bowels, as fruits; but especially, melons and cucumbers. Forbid all salted sub-

* The requisite quantity of opium in a given case, is to be determined by the quantity that would be given by the mouth. Were one grain, or twenty drops of laudanum the proper quantity to be received into the stomach, it will require three grains of opium in the form of suppository, and so on with other proportions. We would suggest however, in the use of the suppository, that it shall be certainly made to pass beyond the sphincter ani; for if this be not attended to, it may be quickly expelled.

stances, as this will create thirst, and this will be quenched by drinks. Seventh, let him resist during the day, as long as he can, by an effort of the will, the desire to make water, when it is unnecessarily importunate. By this means he will diminish the frequency of calls, by thus abating the abnormal sensibility of the bladder which a too frequent compliance with its demands, has generated, and what is thus gained in the day, will also be profitable at night. Eighth, let him wear a Burgundy pitch plaster over the sacrum; and take from ten to twenty drops of the tincture of cantharides, according to age, three or four times a day, until a slight strangury is produced—and this must be renewed, as soon as it has subsided by suspending the medicine, by again recurring to the medicine. The balsam copaiva has also been found highly serviceable; so also the spirit of turpentine. Blistering the perinæum, is sometimes highly beneficial.

3117. Where there is reason to suspect a lithic diathesis, the patient should be exclusively confined to a vegetable diet, and the use of the alkalies, and magnesia.

3118. Mr. Charles Bell says, “incontinence of urine never takes place *but when the boy is asleep upon his back*; and the cure is a simple one. He is to accustom himself to sleep upon his face or his side; the urine is not passed, nor is he excited to dream of making water while he keeps this position. The circumstance is unaccountable, until we reflect upon the position of this master spring of the muscles of the bladder—*the sensible spot, a little behind and below the orifice of the bladder*. When a person lies upon his belly, the urine gravitates towards the fundus; but when he lies upon the back, it presses upon the sensible spot, and distends that part of the bladder which is towards the rectum.” Of the efficacy of this plan, I cannot speak from any experience—it may be successful in such cases as are attended by dreams; but these agreeably to our observation, are the fewer number. (par. 3108.)

CHAPTER XII.

OF GONORRHŒA.

3119. GONORRHŒA, or as it is frequently called blennorrhœa or clap, consists of an inflammation of the mucous membrane of the urethra.

Symptoms.

3120. A slight itching is first felt at the extremity of the urethra, accompanied by a sense of heat in some one portion of this canal. If the part be inspected, the mouth of the urethra will almost always be found glued together, and if a slight pressure be made upon this part, a small portion of a purulent looking fluid may be forced from it. A more than natural desire to make water is now experienced, together with an augmented sensation of heat, especially towards the extremity of the canal, when the urine is passing. These symptoms may be either moderate, or extremely severe. At this time, the purulent discharge is soon found to increase; and this, almost always in proportion to the severity of the inflammation that has besieged the mucous membrane of the urethra. This discharge differs in tenacity, and in colour; and as a general rule, both these circumstances are governed by the degree of irritation. If this be slight, the discharge is thinner in its consistence, and less purulent in its appearance—if the inflammation be great, the matter is not only thicker, but more intense in colour; even green sometimes; it is also more abundant in quantity. The *ardor urinæ* now becomes excessive, and the desire to pass it is almost incessant. *Chordee** now supervenes; especially at night, at which time erections are more frequently produced, and the penis is forced into a bent form.

3121. The prepuce swells, from œdema being produced, by the constant irritation of its inner surface. This sometimes prevents its retraction over the glans, and thus causes *phymosis*. All these inconveniences are sure to be increased, by all excesses; but especially by venereal indulgence, to which the patient is for the most part, strongly invited.

3122. This description rather belongs to the disease, when it exists in an aggravated form; and of which it is often very difficult to relieve the patient; especially such, as are inattentive to the rules laid down for their government, and such as are of a lymphatic temperament, or of scrofulous habit. The whole tract of the urethra becomes inflamed, which diminishes the calibre of the urethra so much, that the urine is delivered from it with great difficulty as well as severe pain. The neck of the bladder becomes seriously involved, as well as the prostate, and the glands of Cowper—when this happens, the patient feels a deep-seated

* *Chordee* is a painful, and often repeated erection, arising from an active state of inflammation of the cellular tissue of the corpus spongiosum; and from it thus becoming unyielding, the influent blood causing the erection, causes the penis to bend into a crooked shape, and thus creating great pain.

and painful sensation in the perinæum, which is augmented by sitting down, as well as by standing, or exercise. The *chordee* is now particularly importunate during even the day, and prevents sleep, during the night.

3123. In intemperate subjects, and in careless habits, abscesses form, which suppurate and leave sometimes fistulous openings; or what is perhaps still worse, permanent derangement of the prostate, and the urethra itself. The testes become very painful sometimes, when the inflammation is high in the mucous membrane of the urethra; and the inguinal glands become swollen—constituting the sympathetic bubo.

3124. At other times, the disease is every way much milder; owing either to the want of susceptibility in the mucous membrane of the urethra or to a less stimulating quality of the morbid matter. When this happens, the patient comparatively suffers but little; and the disease if not provoked by errors in diet, or by indulgence in the venereal act, or want of cleanliness, will sometimes wear itself out.

3125. In the female, the sufferings are less intense, though sufficiently so, when it occupies or is confined to the urethra—this however we believe is rarely the case; as the matter of gonorrhœa is constantly offered to the external face of the vaginal mucous membrane, as it distils from the urethra.* Yet, this disease is frequently more difficult to subdue in the female, than in the male; owing most probably to the extensive mucous surface that is presented to the discharge from the urethra, and perhaps in some instances, from less attention to cleanliness.

Diagnosis.

3126. In the male, as well as the female, gonorrhœa can only be confounded with the *gleet* in the former, and leucorrhœa in the latter; both of which, as regards the principal sign, namely, a purulent discharge may be mistaken for each other, as no sensible properties in either will serve as a basis for distinction; especially, as both gleet and leucorrhœa may be but the consequence of gonorrhœa. We believe, the want of capacity to propagate itself, is the only certain, or safe criterion to judge by.

* Swediaur and some others, think the gonorrhœal inflammation never occupies the urethra in the female; and many think it rare; this we believe to be the case; yet we know from ocular demonstration, that it sometimes attacks this canal. The vagina is certainly its most common seat, and this for the most obvious reasons—reasons, that no force of fancy, nor desire of theorizing, can destroy. Swediaur makes its location more extensive, and says, it may attack the clitoris, round the orifice of the urethra, the nymphæ, the vagina, or the inferior commissure of the labia and rapha.

Pathology.

3127. The pathology of gonorrhœa seems almost to force itself upon us, by the uniformity of its location, and the entire knowledge of the nature of the membrane which becomes affected both in the male and the female. It has therefore been constantly received upon trust, until lately, that it is a specific inflammation of the mucous membrane of the urethra in the male, and also of the female, with the addition in the latter, of its extending itself within the vagina. But Sir Astley Cooper had an opportunity of testing its location in the male, in the person of a criminal that was executed while the disease was upon him. Sir Astley says, "the inflammation had extended down to the bulb of the urethra; for an inch, or an inch and an half down, the urethra was exceedingly red, and there was some effusion of matter on the internal surface; the urethra was also red at the bulb, but not of so deep a colour. The inflammation therefore, is not always confined to an inch or an inch and an half down the urethra, but often extends over the bulb, and in this way produces strictures." *Lectures*, p. 462. Sir Astley thinks the inflammation is of the erysipelatous kind; but of this some doubt may be entertained, as the discharge is too truly purulent, and often too mild, to be the product of this particular inflammation. He says, that ulceration takes place occasionally in the mucous follicles, but never in the urethra itself; which circumstance we think supports the belief, that the inflammation of gonorrhœa is not of the erysipelatous kind.

Treatment.

3128. The success of remedies for gonorrhœa, very much depends, 1st, upon the stage of the disease at which they are employed; 2d, upon the strength of the remedies themselves; 3d, upon the constitution or the temperament; 4th, and upon the habits of the individual who may be the subject of it. In its mild form it sometimes cures itself.

3129. 1. As the stage of the disease is of much consequence in the treatment of gonorrhœa, we shall notice three periods; *a*, the incipient; *b*, the acmé; and *c*, the decline, of the inflammation. In the first, *a*, if it be attended to with sufficient promptness, the inflammation from its moderation may for the most part be overcome by gentle astringent injections; and for this purpose we have scarcely ever failed with the acetate of zinc, in the proportion of one grain and an half, to the ounce of soft wa-

ter.* This is to be used three or four times a day by means of a well working penis syringe; taking care to pass urine immediately before throwing up the injection. We think this precaution of great importance, though some have been of opinion that it is useless, as the inflammation never extends beyond a very limited distance within the urethra, and consequently agreeably to them the mischief cannot be increased by the matter of gonorrhœa being driven further into this canal. Now we have just stated upon the authority of Sir Astley Cooper, that it penetrates to the bulb; and in the case above related, it occupied seven inches of the urethra. Care should always be taken, that the pipe of the syringe be not introduced too far into the urethra when the injection is about to be thrown up, as much injury is sometimes sustained, from a neglect of this caution—an eighth of an inch within the meatus is every way sufficient for all useful purposes. If this application be properly persevered in, it will very rarely fail to relieve in a very few days. In good constitutions, this treatment is all that is necessary, provided the restrictions we shall lay down for either period of the disease be strictly conformed to, as a neglect of these may give an opportunity to inflammation to extend itself, as well as to become aggravated.

b, Its Acmé.

3130. In the more virulent instances of this disease, the inflammation becomes very severe, and causes much distress. The discharge becomes excessive, and is even sometimes tinged with blood. The *chordee* and pain in the perinæum are much augmented, and the whole phenomena of the disease declare the

* Dr. Carmichael is averse to the early use of astringent injections, (for in this light we must look upon the acetate of zinc,) and says, "the practice is attended with such risk of exciting inflammation of the entire urethra and bladder, and all the immediate as well as secondary train of evils attendant upon this calamity, that I have no hesitation in saying, that it is a practice that cannot be too strongly deprecated." Notwithstanding this sweeping proscription, however, we are in the constant habit of employing the acetate of zinc in the strength named in the text in the commencement of gonorrhœa, and have been for the last thirty years, and we can most truly say we have never had the slightest cause to regret its exhibition—on the contrary indeed, we are most firmly persuaded of both its efficacy and its safety; the strength of the solution should never be greater than that we have just indicated. The charge of injury does not justly lie against the nature of the remedy, but against its too great strength. We do not hesitate to believe that all the evils have accrued, that Dr. C. dreads; indeed we have seen them, yet it has constantly been owing, agreeably to our own experience, to the injudicious use and the inappropriate strength of the solution, that caused the injuries just named.

mucous membrane of the urethra to be in a state of high inflammation. Injections must not be employed in this stage, the indications being exclusively to reduce inflammation as quickly and as certainly as possible. For this purpose, the patient should be confined to his bed for a few days, if practicable; he should be liberally purged, and the strictest antiphlogistic regimen should be observed. We believe that the neutral salts are as eligible as any of the purgatives, and these should be repeated as may become necessary. Dr. Carmichael warmly recommends the tartrate of antimony to be joined to the Epsom salts, or sulphate of magnesia, and administered so as to excite slight nausea, and to procure four or five stools a day. He should take most liberally any of the demulcent drinks, such as gum Arabic water, flaxseed tea, slippery-elm bark tea, barley water, &c. Leeches should be applied to the perinæum when this is the seat of pain; and when the *chordee* is excessive, even along the urethra. By these means, the inflammation becomes milder, the pain abates, the discharge becomes thinner and of a less virulent appearance; the *chordee* is more moderate, and is less frequent, and the extremity of the glans loses its intense redness and transparency—in a word, the patient becomes assured the disease is upon the decline.

c. *Its Decline.*

3131. When this condition arrives, the gently stimulating injection just stated above may now be had recourse to with marked advantage. And it is at this period that the balsam copaiva and cubebs become serviceable, and should always be given when the discharge does not yield to the injections. When the balsam copaiva or cubeb has been decided upon, we have thought it best to suspend for a time the use of the acetate of zinc.

3132. The balsam very frequently excites a great disgust from its strong aromatic taste. This is chiefly owing to the mode of exhibition, being usually mixed with some other substance which renders its taste almost insupportable—this inconvenience can be readily removed by the following plan. Mix a tea-spoonful of the tinct. amara with a wine-glass of cold water—in this, *drop* the appropriate quantity of the balsam; but be careful not to *mix* them. The balsam will collect itself into a round form, and will remain, if not disturbed, separate from the bitter tincture and water. When thus disposed of, let the whole be thrown to the back part of the mouth and swallowed; and if this be adroitly done, the balsam will impart no taste to the palate. Thirty or forty drops of the balsam may be taken, three times a day. A

drachm of powdered cubebs* may be taken three or four times a day, mixed in syrup of any kind.

3133. Some recommend much larger doses than we direct of the balsam copaiva, but we fear upon no good practical grounds, as it rarely happens that the inflammation of the urethra, or of the neck of the bladder, is so entirely subdued, that it would be either safe or successful to follow the advice. The same may be said of the cubebs.

3134. 2. In the treatment of gonorrhœa, much of the success will also depend upon the appropriate strength of the remedies. They are generally made too strong; and an overweaning anxiety cause them to be used too frequently. The proportions above mentioned should rarely be exceeded.

3135. 3. It is also a matter of much moment to the cure of this disease, that the constitution should be sound; and especially, it should be free from scrofulous taint.

3136. 4. The disease is often of extremely difficult management, also in habits long accustomed to the too free use of ardent spirits—the reason, of these difficulties will readily present themselves.

3137. In females, the disease is to be combated by the same means, and under the same restrictions. The woman should however throw up injections in both the urethra and vagina—in this operation, she should be carefully instructed, lest she do mischief to the urethra, or only inject the vagina.

3138. During the whole progress of treatment, the utmost attention should be paid to diet; to the state of the bowels; and to cleanliness, especially in the female.

3139. The diet should consist of vegetable and farinaceous substances, exclusively—not a particle of animal substance should be employed, during the whole of the first and second stages—if any latitude be allowed, it must be in the latter; but even here, it would be well to avoid it. The bowels should be kept freely open, by almost any purgative medicine; and none answer better, as we said just now, than the neutral salts. Cleanliness cannot be too much insisted on—frequent ablutions with lukewarm flaxseed tea, where this would not be inconvenient, or of plain warm water.

3140. No one circumstance attendant upon this disease, is so vexatious as chordee—it often prevents sleep, from the frequent,

* Mr. Jefferies is of opinion, that when cubebs are successful, signs of amendment show themselves as soon as forty-eight hours after they have been commenced; and if they do not exert a favourable influence in five or six days, it is scarcely worth while to persevere in their use. He says this remedy should be used in large doses—that is, six or eight drachms of cubebs must be given in the twenty-four hours, but after active inflammation is much reduced.

and long-continued erections that almost constantly occur during the night. Camphor, opium, and cold water, are the general remedies for this distressing accompaniment. The warm bath has been found useful when taken just before going to bed. The *dulcamara*?

3141. Ten grains of camphor may be taken in a little syrup of any kind on going to bed. A grain or a grain and a half of opium may be employed for the same purpose; or these may be united, if the affection be very pertinacious. Or the penis may be subjected to a stream of cold water. I have mentioned the *dulcamara* as a remedy for *chordee*; but of its efficacy I have no proof; but from analogy I would employ it. I have used this plant in infusion, (an ounce to a pint of boiling water, and this quantity taken daily,) in several cases of high constitutional venereal excitement, (in one instance amounting to *furor uterinus*,) and to several gentlemen for cutaneous affections, in each of whom, the venereal appetite was entirely destroyed as long as this medicine was continued—it would therefore seem to bid fair to be useful, in *chordee*.

Gleet.

3142. A gleet is a discharge of puriform matter from the urethra of the male, after all infectious taint has ceased to be formed; in the female it is almost always from the vagina, and generally passes for, or is called *fluor albus*, or *leucorrhœa*. The habit of this discharge is sometimes very difficult to break—hence its continuance for years in very many instances.

3143. The terebinthinate medicines have long held a conspicuous place, in the treatment of this affection, and they always deserve a trial, if it resist the appropriate local remedies. For the most part, especially in the less inveterate cases, these are every way sufficient to put a stop to this discharge—one of the best is the sulphate or acetate of zinc. Two grains to the ounce of water will be found sufficiently strong for the purpose provided the urethra is free from stricture; this may be injected three times a day, and as a general rule, not oftener. Sulphate of copper one grain to the ounce, and increased if necessary to two is also very useful. The nitrate of silver has also been recommended in high terms; it should not exceed two grains to the ounce. There constantly attends however, the use of the solution of this article, a very serious objection; namely, the indelible stain it leaves upon every substance it touches; great care is therefore required to guard against this inconvenience. Mr. John Hunter recommends a very weak solution of the corrosive sublimate, (one grain to eight ounces of water.) Mr. Foot extols the following prepara-

tion as an injection, after an assurance, that all inflammation has subsided. Dissolve a quantity of the sulphate of copper in a quantity of water; precipitate the copper by the lixivium of tartar; let it separate, and then pour off the clear liquor. The precipitate must be washed, until the water is insipid; make a saturated solution of the carbonate of ammonia in water, filter, and add as much of the precipitate to the solution as it will dissolve, which set by for use. When to be used, add six drops of this preparation to an ounce of water, and use it as an injection. Of the utility of this ammoniated copper we can say nothing from our own experience.

3144. Beside the internal use of the balsam copaiva, and the turpentine, much advantage is frequently derived from a persevering use of the tincture of cantharides. When this preparation is decided upon, thirty drops should be given three times a day in a little sweetened water, and the dose increased by five drops every fourth or fifth day, until some irritation is felt at the neck of the bladder—it must then be desisted from until this symptom goes off. The medicine must now be commenced *de novo* with the minimum dose, and gradually increased as before, provided the disease has not yielded to the previous quantity.

3145. When gleet resists these appliances, there is much reason to suspect a stricture in the urethra, for which, the bougie is the remedy.

CHAPTER XIII.

DROPSY.

3146. WE shall not stop to inquire into the strict nosological situation of dropsy, as it would seem entitled, with about equal right, to be classed among the affections of the sanguiferous, as with the derangements of the absorbent systems.

3147. By dropsy is to be understood a preternatural accumulation, most frequently of a serous fluid, in one or more cavities of the body, or in its cellular interstices.

3148. The part of the body in which this collection may take place, gives a specific name to each accumulation. Thus, when it occupies the abdomen, it is called ascites; when the chest, hydrothorax, &c. But as the pathology of each variety seems to be very much the same in most instances, we shall say a few words in relation to its proximate cause. By this, however, we

are not to be understood as attempting to settle this still disputed point.

3149. It is ascertained, that in health a constant balance is maintained by two opposite and extensive functions in the body, namely, exhalation and absorption; and that when this equilibrium is destroyed, either by an excess of exhalation or a diminished absorption, an accumulation must necessarily take place, and hence dropsical swellings. For the structure of the cellular tissue is such, as to leave spaces or meshes throughout its whole distribution, and that these spaces or meshes contain a fluid, which has been called by Bichat cellular serosity. But we have every reason to believe, that in a normal condition of the cellular structure, it contains nothing but a thin exhalation or vapour—or in other words, that in the living body the cellular membrane contains no distinct fluid beyond the elastic one just spoken of, and which appears every way sufficient for the purposes for which it is designed, namely, to give it suppleness. This fluid or vapour, agreeably to all confession, would seem to be derived from the capillary exhalants, and is very quickly after its elimination removed by absorption—but whether this action be performed by the lymphatics as supposed by Hunter, or by the radicles of veins, as insisted on by Magendie, or by both, remains yet to be determined. But this is not of any moment in our present inquiry, for by whatever agency this is effected, we know it constantly goes on in the healthy condition of the body, and thus accumulation is prevented.*

* The origin of this exhalation or vapour, which is every where found in the cellular interstices, is rather a disputed point among physiologists, as the vessels purporting to perform this office, namely, the exhalants, agreeably to some have a disputed existence. Bichat admitted them, (that is, a certain set of minute arteries, the open extremities of which pour out a fluid,) rather by a rigorous process of reasoning, than from anatomical demonstration; Magendie and Beclard deny the existence of such a system of vessels, though they admit exhalation to be a process of the living body. And it is now generally supposed that the capillaries perform this office, and without the necessity of having recourse to the speculation of a distinct set of vessels. But let the mechanism that furnish exhalations be what it may, it is every way certain, they “may be morbidly augmented or diminished, or quite changed.” The best examples of morbid increase of exhalation is conceived to be found in those of the serous membranes, giving rise to the disease called dropsy. (*Hydrops.*) It is most frequent in the peritoneum, and in the general cellular membrane; less so in the pleura and pericardium, and in the arachnoid membrane, or its divisions. In a local form it is very frequent in the vaginal coat of the testicle. Recent observations on this morbid change, and on the state of the system when under its influence, would lead to the conclusion, that it is rarely a primary process, but is generally to be considered as the effect of another,—as the symptom of a peculiar condition of the system of capillary arteries going to the tissue which is the immediate seat of exhalation.”

“The condition of the capillary system in which exhalation is preternaturally augmented are referable to two general heads. The first of these is the

3150. This, however, notwithstanding its simplicity and its apparent verity, is not found to be the true explanation, except perhaps in some few instances, to be noticed presently. For, 1st. The fluid constituting dropsy is not always found to be the healthful yield of the exhalants. 2d. That absorption is scarcely ever more rapid or vigorous, than in dropsy, as is evidenced by the sudden emaciation that follows; consequently, in such cases, absorption goes on rapidly. Therefore it would seem, that this disease does not always depend upon an increase of exhalation, or upon a diminution of absorption. To what circumstance, then, are we to attribute dropsical collections? We would say, to a morbid increase of activity in the blood-vessels, which enter into the composition of the serous tissue, and thus forcing this membrane to a preternatural effusion or secretion.

state of distention which results from any mechanical impediment to the free motion of the blood in a venous trunk or trunks, or in the arteries."

"a. That the distended or overloaded state of the capillaries which occurs during inflammation may cause a great and disproportionate increase of the fluid exhaled, is established by the phenomena of inflammation of the filamentous (cellular) tissue, and especially of the serous membranes. In the former, œdema and anasarca are results by no means unfrequent. In the latter, one of the first effects of inflammation, under certain circumstances, is effusion of fluid more or less copious, and containing various proportions of coagulable matter. If the proportion of the latter be great, its coagulation forms organizable lymph, which is the medium of adhesion, while the serous part disappears, apparently by absorption. If it be small, its coagulation gives rise to mere loose flakes, which, with the constant increase of the fluid effused, are unable to maintain their attachment to any part of the membrane; while the thin serous part is so copious, that, as it is not removed by the veins and lymphatics, it remains in the form of a serous, a sero-sanguine, or a sero-purulent fluid, constituting genuine dropsy."

"That the capillary distention which takes place in fever is a frequent cause of anormal exhalation, is shown by the collections of limpid serum often found in the brain and spinal cord; by that sometimes seen in the pericardium; and by the brownish watery fluid often found in the pleura in the bodies of those cut off by any of the varieties of that disease."

"b. The influence of impediment to the return of the venous blood in the production of extraordinary effusion has been known from the earliest periods of medicine." "The fact is established by the effects of deranged circulation, as they take place, *first*, in veins; *secondly*, in arteries; and *thirdly*, in both sets of vessels jointly, or in the capillaries."

"To the first head may be referred tumours in the vicinity, or affecting the substance of veins;" "of the influence of the second cause in producing dropsical effusion, we have examples in that which results from enlargement of the right side of the heart, ossification of the coronary arteries, aneurism of the aorta or innominata, or even of the cœliac artery, all of which give rise to more or less serous effusion in the pleura, or a symptomatic dropsy of the chest."

"The third condition is perhaps the most common origin of the symptomatic or secondary dropsies. Whatever retards the free circulation through the minute arteries and veins of any organ or texture will produce one or other of the following effects; viz. inflammation, injection with effusion of red blood, or effusion of serous fluid from the exhalants, according to circumstances."

Elements of General and Pathological Anatomy, by David Craigie, M. D. p. 201.

Here, then, we have a natural action, morbidly increased, as the proximate cause, and an increased effusion as the proximate effect of that cause—and hence watery or serous accumulation in cavities thus circumstanced. When this accumulation takes place, we can readily imagine that it may be perpetuated, if not augmented, by the effused fluid itself becoming a mechanical stimulus to the surface with which it is in contact. And what seems to prove the presence of a morbid excitement is, that the removal of the water, either by medicine or by an operation, does not always cure the disease—for it requires for this purpose a change in the action of the vessels that furnish this fluid, and not its mere removal. Hence, its removal by an augmented absorption, or by tapping, do not always succeed, because they do not necessarily remove or controul the local diseased action. And hence, the confusion so often found to exist in the pathology of dropsy, arises from mistaking the effect for the cause.

3151. It may be said that the serous membranes may be inflamed and relieved without yielding a dropsical effusion. But this, however, must be admitted with some caution, since Laennec lays it down as a fundamental law of this class of membranes, that they begin to effuse the moment they become inflamed; nor is it essential to this end, that the phlogosis shall be even considerable in all cases. Or in other words, that effusions have taken place in a serous membrane, especially in that of the pleura, without any great manifestations of the existence of inflammation; at least as far as could be detected by local symptoms. Indeed, it would seem to be a part of the œconomy of these membranes, to effuse abundantly, when but slightly inflamed; for instance, the arachnoid coat of the brain. Or, these membranes may be stimulated to profuse secretion, independently of inflammation, or even after this has ceased—hence, perhaps, the variety of colours observed in the fluid of dropsies. As regards the colour of the fluid of dropsies, Dr. Armstrong says, “when the fluid drawn from the abdomen of dropsical patients is turbid from the presence of albumen or fibrine, which is easily ascertainable, the case is connected with inflammation of some portion of the peritoneum; but when the fluid evacuated is perfectly transparent and straw-coloured, it affords a strong presumption, that some great organic affection exists in the liver, or elsewhere.”—*Morbid Anatomy*, &c. p. 76.

3152. It may, however, be urged, that there are cases of dropsy or of œdema, in constitutions so enfeebled as to forbid the idea of inflammatory agency—this really appears to be the case in certain instances, as in chronic, wasting diseases; such as scrofula, phthisis pulmonalis, chronic peritonitis, &c. In such cases, we should be disposed to believe, that accumulations of

serum from diminished absorption really takes place, and this perhaps from the generally deranged state of the lymphatic system in most of these diseases. This is rendered still more probable by our having it in our power frequently to remove these swellings temporarily by position, frictions, and bandaging.

3153. By this, we are not to be supposed to yield to a once popular opinion, that dropsy was essentially a disease of debility—on the contrary, we are certain, that there are both active and passive dropsies; or rather dropsies that depend upon an increase of action or of inflammation, and others where there may be a mere loss of balance between exhalation and absorption.* We are aware of the tendency of all doctrines to run into extremes; and lucky is he who can determine how far to pursue them with advantage, or to perceive when it is proper to stop. For we are persuaded, that if either of the doctrines mentioned above be too exclusively acted upon, that disappointment, if not injury, will follow. And it would be fortunate for the profession, as well as highly important to the cause of humanity, were we in possession of certain and never-failing diagnostics, of the two conditions of the system.

* “No doubt what we abstractedly call dropsy, is often the result of inflammation, and much good has arisen by attempts to refer dropsy, a mere consequence, to its true causes; but the doctrine of inflammation is unquestionably carried too far when it is made to embrace every modification of dropsical disease, which in the aged is so frequently occasioned by organic derangement, of a most dangerous kind, that we might apply to them the language of Arætaus, *ab ipso pauci liberantur, idque felicitate, acdeorum potius quam artis auxillio*. If however, I might digress for a moment, one variety of inflammation, namely, that of the inner lining of the arteries and veins, is oftener connected with dropsy, than even most of the advocates of the phlogistic hypothesis are aware; at least I have so frequently witnessed it, that, in every fatal case of dropsy I would advise an examination of those vessels, that we may thereby be able more fully to elucidate this point of pathology.”—*Armstrong, ib.* This is a new and highly interesting suggestion, and well deserves the attention of the cultivators of morbid anatomy. The medical world is indebted to Dr. Rush, for most of the opinions now entertained of dropsy.

Andral thinks, that the serous membranes may become congested from a general hyperæmia or plethora of the system; and when this happens that serous effusions unattended by pain may take place into the different cavities lined with serous membranes, especially the abdomen. He adds, “it appears to me highly probable that these dropsical effusions which are generally denominated *active*, are simply the mechanical result of the over-distention of the vessels, which allow the serous portion of the fluid to transude through the parietes of their capillary ramifications. In confirmation of this view of the subject, I may cite the observation, that if a large quantity of water be injected into the veins of an animal, without having first withdrawn blood from the system, serous effusions are quickly formed; whereas, if the mass of blood be diminished by venesection before the water is injected, that fluid is gradually and almost imperceptibly eliminated. Besides we know from actual experience, that those dropsies usually termed *active*, which are combined with a state of general hyperæmia of the system, are constantly relieved, and not unfrequently altogether removed, by the use of the lancet.”—*Pathological Anatomy, Vol. I. p. 46.*

3154. It is true that attempts have been lately made to determine the signs of the respective states of dropsy, by Dr. Blackall, and we are disposed to believe he has succeeded in removing some of the difficulties upon this subject, if he have not overcome them. He states that, in dropsies of high excitement, that the urine will always coagulate by heat or nitrous acid, like the serum of the blood. While dropsies proceeding from visceral derangements, as scirrhus or congestion, may be known by the urine being scanty, high-coloured, loaded with red sediment, and depositing nothing on the application of heat. And where feeble action obtains, the urine is scanty and pale, and not coagulable by heat, and deposits no sediment.

3155. We have been attentive, since we have read Dr. Blackall's book, to the appearances of the urine; and though generally confirmatory of his distinctions, our experience does not always coincide with them.*

3156. Dropsy, as we have observed above, (par. 3148,) receives a specific name, from the part of the body in which the affection may be located; or from the organ that may produce it. As ascites, or abdominal dropsy; ovarian dropsy; hydrocephalus, &c. Some dropsies do not belong to the physician, strictly so called; as hydrocele, and we might with equal propriety add, the dropsy of the ovarium, as relief is but rarely obtained, by constitutional remedies.

SECT. I.—HYDROCEPHALUS INTERNUS.

3157. It does not appear to be of much consequence in a practical point of view, the place we give hydrocephalus internus; nor do we look upon it as a matter of moment as a nosological arrangement; for two places perhaps may with equal propriety be assigned it—first, either immediately following the acute affections of the brain; or second, ranking it with dropsy. And as we do not profess to be attentive to any strict nosological classification, we give it the place it is now found in; and more especially as it is not only an inflammatory affection, but one exclusively confined to the head, some of the diseases of which, we have been considering, and particularly phrenitis, to which it is occasionally without doubt, a sequel.

3158. It would be altogether time ill-spent, in a work like the present, to inquire into the medical history of this disease; we

* It is beyond dispute, that dropsy may proceed from the want of a due quantity of blood. Dr. Gaspard, (*Jour. de Physiologie Exper.*) says that the inhabitants of a certain country became dropsical on account of their being obliged to live upon grass for a considerable time, in consequence of a devastating famine.

refer those who are curious upon this point, to the works that treat professedly upon this subject. We shall only observe, that however familiar the ancients might be supposed to have been with hydrocephalus internus, it is every way certain, that its pathology was perhaps altogether unknown to them; for it is only within a very few years, that it has been well understood even by the moderns.

3159. By *hydrocephalus internus*, is to be understood a preternatural turgescency of the vessels of the brain; a collection of serum, or serosity, within the ventricles, or upon the surface of the brain, or all; for dissection has discovered to us, that each of these circumstances may obtain at one and the same time.

3160. Mr. Itard* with much propriety, and we think also with much pathological truth, makes four species of this disease. 1st. *Acute idiopathic hydrocephalus*. 2d. *Acute symptomatic hydrocephalus*. 3d. *Chronic idiopathic hydrocephalus*. 4th. *Chronic symptomatic hydrocephalus*.

3161. The first species, is made to consist of serum suddenly effused by the tunica arachnoides, in consequence of an idiopathic affection, within the ventricles, and upon the surface of the brain itself. This may be occasioned by external violence, as falls, and blows; or by sudden passions or emotions of the mind, as anger, fear, frights, &c. by the sudden arrest of habitual evacuations, as bleeding from the nose, the discharge from crusta lactea, sore ears; or the drying up of issues. It is most common with children; and particularly between the periods of the first and second dentition, among those of a robust constitution, and of florid complexions—at other times, it appears to be constitutional, and to run in families. We are at this moment attending a little girl of nine months old, with this species of complaint, who has lost, we are informed by the parents, five brothers and sisters of the same disease; and Cheyne mentions a much more numerous loss of this kind. In adults it is rare; yet with them, we have seen it in several instances prove fatal. Agreeably to Itard, epidemic peculiarity has an influence upon its prevalence. In one instance, an epidemic scarlatina; and in another, an ataxic fever, were followed by many cases of hydrocephalus.†

3162. The proximate cause of this disease appears to consist of an irritation or inflammation of the tunica arachnoides, which eventuates in an effusion of serum from such portions of this membrane, as may be subject to this irritation or inflammation;

* Dict. des Sciences Med. Art. Hydrocephale.

† Duges is of opinion, that the acute hydrocephalus may be produced by any cause that operates violently upon the nervous system; especially, jealousy and terror.

and which consequently may be, any portion of surface of the encephalon which this membrane covers. If this be true, it must be evident, that we must have at least three periods in the disease; each of which, during its continuance, must necessarily have its own characters.

3163. Dr. Whytt, many years ago, divided this disease into three stages; but certainly without understanding its pathology. He has however notwithstanding this, proved himself to be a very accurate observer, and a faithful recorder of symptoms; for we very much doubt, whether a more accurate, general history could be given, especially of chronic hydrocephalus than he has left us. He certainly was unacquainted with the two states of inflammation now so generally acknowledged, as well, as so commonly acted upon; though he has given evidence, that hydrocephalus may be symptomatic; for in enumerating the causes, he mentions, "ischuria," as giving rise to this complaint; and that "in tedious chronic diseases, water is often collected in the ventricles of the brain."*

3164. The first period of the acute hydrocephalus, is generally marked by a more than usual reluctance in the child to talk; seeking the darker places of the room; peevish much beyond its usual wont; loss of appetite, or voraciousness; pretty sudden loss of strength; an unnatural heat of skin, especially about the head, though the exposed hands may be even cooler than natural; a contraction of the forehead and eyebrows; an intolerance of light and noise; a frequent pulse, especially towards evening; a flushed face, or only one cheek; heaviness of the eyes, and sometimes a discharge of water from them. If the child be old enough to be interrogated, it will declare its head to be the seat of its sufferings; if it be not, it will manifest this, by vague, and ill-directed attempts to place its hand upon it. These actions, especially in children under two years of age, are very often mistaken in what they mean—thus with some, attempts are made to put their fingers in the mouth, especially if they have not passed the first year; with others, beyond this period, the nose is frequently rubbed; with others, rather more advanced, the nostrils are picked, even to bleeding; while others, still younger, will roll their heads from side to side with fatiguing perseverance. The former of these symptoms are almost always attributed to worms; while the latter always produces an apprehension, that "the head is affected."

3165. The child for the most part is rather drowsy; that is, it lies with its eyes closed, and appears to sleep—but this is either merely an instinctive act, or the sensibility of the child is inor-

* Works, p. 740.

dinately increased; for the least noise, suddenly made, or the slightest touch, will excite an alarm, that is manifested, by sudden startings. Or it will utter, during sound sleep, apparently piercing and fearful cries, without being able to state, that it was either alarmed, or in pain. Sometimes we have observed the head during several days together, carried first on one side and then on the other; and complaint is made with those sufficiently old, of a pain in the back of the neck. The secretion of the nostrils is almost always stopped altogether; and a dry, characteristic cough, is almost certain to be present, and almost always continues through the whole course of the disease. We do not recollect an instance of idiopathic acute hydrocephalus, without this cough being present.*

3166. As the disease advances, and is about to form the second period, we find an aggravation of almost all the symptoms; the child now inclines to lie constantly, and may be observed to press its hind head forcibly against the pillow that supports it; or is much inclined to lie with it low. If it be raised, the head hangs motionless down, and the child betrays much uneasiness at the change of position; and if it can speak, desires to be laid down with an importunity and impatience that loudly proclaims its sufferings. When the child is returned to its pillow, it is oftentimes pale, and apparently much exhausted by the effort it has made; it will sigh deeply, or scream violently. The face becomes more flushed, or there may be a deep-red spot on one cheek only, which will perhaps in the course of a few minutes shift itself to the other cheek. The lips are dry and parched; the tongue for the most part is clean; and there is either great thirst, or no demands are made for drink. The pulse now becomes slower and more contracted; the pupils widen, and an occasional obliquity in the eye may be observed; the forehead becomes permanently corrugated and the eyebrows contracted.

3167. The mouth is kept in almost constant motion; the tongue is frequently thrust beyond the lips, and again suddenly retracted; the eyes are kept almost constantly open, if the room be dark; but if a strong light be suddenly admitted to them, the pain becomes so intense, that a violent scream is instantly given, accompanied by an earnest desire "to take the frightful thing away." We have seen this repeated a number of times in the same individual; indeed, for a time, whenever a sudden light was admitted, and especially the light of a candle, when it was necessary to approach one, to give its medicines, or for other

* We believe that Dr. Physick was the first observer of this symptom being an almost constant attendant upon this disease, as we do not find it named in some very late publications upon this disease. But notwithstanding this silence, we are every way confirmed in the frequency and truth of the observation.

purposes. Indeed, the eye may almost be said to obtrude itself upon our notice; not only from the extreme sensibility it manifests to light for some time, but from the varying and prophetic changes it undergoes to the last moment of life. It is either steadfastly fixed, or constantly moving; now shrinking from the light, from exquisite torture, or gazing upon the broad day, with the most perfect indifference. Now convulsively drawn upwards under the eyelid, that nothing but the whites can be seen, even by separating the palpebræ; or their coloured portions sunk deep in the inner angles of the orbits,—no visible part of the frame appears to undergo such decided changes as these little organs; nor from the condition of which, can so much be learnt by the attentive observer. It is said, that a convulsive oscillation of the pupil may be observed upon the approach of light, which appearance is declared to be peculiar to the acute hydrocephalus. Now were this constant, which it is not, though so declared by M. Itard, it might be highly useful in diagnosis, as it would form a pathognomonic sign.

3168. The bowels are for the most part constipated, and difficult to move; the epigastrium more or less tender, and the abdomen sunk; the urine scarce, and generally high-coloured, depositing a white mucilaginous substance, sometimes with shining particles floating in it; the hands and feet inclined to become cold, while sweat may be observed upon the forehead and about the neck. This state of things continue for an uncertain period, when the third period may be ushered in by convulsion or by a manifest squinting, with decided coma. Paralysis may be added to the new symptoms, or a pretty constant twitching of the leg and arm of the same side,* or a regular and constant motion of them may be now kept up; the pulse is very frequent, small, and wiry—the face disfigured by a livid suffusion; a cold sweat bedews the whole body; the breathing becomes slow, and stertorous, until death closes the scene; or this event may be sadly hastened by convulsions. The bowels during this period reluctantly yield a dark, rue-coloured bile; and the urine oftentimes is entirely suppressed. This period is uncertain in its duration; it may continue several days, or it may terminate in a few hours. Indeed, we have seen a number of instances, where convulsion has not ceased, for a moment, for seven or eight hours together. We do not recollect having seen a single instance of convulsions that were not preceded by strabismus, though we have often seen strabismus without convulsions.

* When paralysis attends hydrocephalus, it always declares a more aggravated form of the disease, and perhaps proves that some portion of the cerebrum itself is involved in the disease. See par. 837.

3169. The duration of an acute hydrocephalus is very uncertain, and dependent upon circumstances of cause, constitution, extent of effect, and the period of life. Nor is the succession of symptoms less variable; each individual case showing its own peculiarities. Its progress will therefore be sometimes sufficiently rapid and severe to destroy in a very few days; and other times it may occupy weeks before it shall terminate. The cases in which head-ache has been severe, and where squinting takes place early, are those that terminate the soonest. Again, if after the third or fourth day, the child looses its flesh rapidly, becomes very pale, and its features suddenly sink, it is pretty certain that the disease will run its course rapidly. At other times, the progress is slow, and without much violence of symptoms; and thus runs into a chronic form.

3170. There is a peculiarity in the character of this disease, that is truly distressing, and ever to be dreaded; because, so far as we have observed, it is always deceitful—what we allude to is, the promise of restoration, by apparently a real amendment. We have seen a number of cases, where almost every threatening symptom had removed itself; and where the little patient, seemingly, was suddenly placed in a state of convalescence, and hope entertained that the danger was past—but in another instant every thing was reversed, and the child quickly destroyed, by a cruel convulsion. This calm was probably owing to the relief the vessels experienced from the act of effusion, and the subsequent and suddenly bad symptoms from the pressure the effused fluid caused.

3171. The prognostic in hydrocephalus must, from the very nature of things, be unfavourable, whether it be idiopathic or symptomatic, under any hitherto proposed plan of treatment. This appears to be the uniform opinion of all the writers we have met with upon this subject. Whytt says, he never cured one that had the characteristic symptoms of this disease; while others, as Fothergill, Percival, &c. declare they have succeeded in curing the disease. Brichteau says he has succeeded to cure one in six; while Odier states his success to have been one in five. M. Itard says he has not been any thing like so fortunate, though he employed every known remedy, besides obtaining the advice of the best practitioners in Paris. But he adds, that within three years, after he had dared to introduce the vapour baths in the treatment of this complaint, that he had obtained much more flattering results; that he had been able to save two out of three children he treated by this method. We will not pretend to fix the proportion of our success to our failures; but if we do not deceive ourselves, we may say, we have seen hydrocephalus

cured in many instances;* and some we have at least *seen get well*, under the most unpromising appearances. The symptomatic form of this disease is certainly more manageable than the idiopathic, as the disease from which it proceeds may be “medicable,” and thus giving greater chance for the cure of the other.

3172. The signs which announce a favourable change taking place, are 1st, an abatement of vascular and cerebral excitement, together with a diminution of the squinting; 2d, the relaxation of the forehead and eyebrows; 3d, the stomach retaining its drinks, and the bowels discharging a newly-secreted and yellow bile; 4th, the urine depositing a lateritious or a heavy sediment; and less intensity of colour; 5th, a soft skin, from gentle transpiration; 6th, “though last not least,” in its favourable import, is the renewal of the secretions from the nostrils.

3173. Hydrocephalus, it is said, may be simulated by a variety of other diseases, as phrenitis, ataxic fever, serous apoplexy, &c. Why need we say of the first of these, that it simulates dropsy of the brain? May we not declare, that inflammation or irritation is the absolute cause of both or either? And that the others can be the cause of symptomatic hydrocephalus, there can be but little doubt, if dissections prove any thing.

Dissection.

3174. Let us then inquire what the knife reveals to us, in those who have died of the acute hydrocephalus. 1st. “An extreme engorgement of the sinus of the dura mater, and of the blood-vessels spread upon the brain itself. 2d. The substance

* We are perfectly persuaded, that this truly fatal disease may many times be arrested in limine, especially, when it is symptomatic of some derangement of the abdominal viscera. For there is a period in almost every affection of these parts of an acute kind, that calls into morbid action some portion of the cerebral apparatus whenever there is a disposition in the brain or its appendages to take on morbid action. This tendency betrays itself many days before the head appears to be involved in mischief—we are therefore in the constant habit of watching with great care and solicitude the progress of acute (especially) diseases in children. Therefore, we become extremely solicitous, when children become very fretful, (the old woman’s *good sign*,) while labouring under any acute disease; but particularly those of the stomach or bowels, if the sleep be disturbed; for if they are aroused from their slumbers shrieking, and apparently, frightened, we are certain that mischief is brewing, either in the head, spinal marrow, or both; if light becomes suddenly offensive, and to these symptoms is added the *cough* as noted in par. 3165. When this train of signs present themselves, we immediately advertise the parents or friends of the patient of the threatened mischief, and instantly attack it, as if the disease so much to be dreaded, were present. By anticipating the disease in this manner, we are persuaded we have saved a number of children within the last two years—though we must at the same time confess, even this timely succour does not *always* succeed.

of the brain altered, and sometimes softened in its natural consistence, but most commonly firm, and very elastic, (rénitent,) often smeared with a transparent exudation, or an absolute layer of pus. 3d. Effusion of serum to a greater or less extent in the ventricles, or upon the surface of the encephalon. 4th. The brain imbued with a serosity, that only becomes evident by cutting into the brain, and permitting the fluid to fill up the gashes. 5th. Sometimes, however, no part of the brain appears to be moistened by any unusual portion of serum." Itard.

3175. M. Itard asks, "shall we from this condition of the brain, conclude that a hydrocephalus did not exist, though the disease was strongly marked by its appropriate symptoms? I think not," he answers, "*for the effusion* is not the disease; it is only the consequence*; and even by opening the body we may not find an effusion, either because it may have been absorbed after death, or what is more likely, that the irritation of the tunica arachnoides may have been so intense, or sufficiently deleterious, to cause death before the formation of the effusion. Now, we know that similar appearances have followed from the other diseases just enumerated."

3176. In the abdomen, lesions are also to be found; they are the result of a sympathetic influence, between the brain and stomach, &c. This viscus in an especial manner suffers from this cause; hence in hydrocephalus, it is found engorged, inflamed, or suppurating; its membrane softened, and easily destroyed by the finger. We may also observe the intestines to be much disordered, by inflammation, invagination, softened, or even in a state of incipient gangrene; and almost always containing more or less worms. The liver also bears marks of recent engorgement.

Acute Symptomatic Hydrocephalus.

3177. This is only to be distinguished from the species just considered, by being preceded or accompanied by some other

* The fluid, or lymph, thrown out into the ventricles of the brain, was declared by Hunter and others, not to coagulate by heat or other agents, like the serous effusions of the abdomen and thoracic cavities, as was believed by others. M. Haldat, in consequence of these discrepant opinions, instituted experiments to determine the point, and gives the following products as the result of his trials:—

Water	96.0
Muriate of soda	1.5
Albumen	0.7
Gelatine	1.
Mucus	0.4
Phosphate of soda and lime—a trace; loss	0.4

Amer. Journ. of Med. Scien. for Aug. 1832, from Journal de Physiologic, Tom. LXXIII.

acute idiopathic affection. This species is doubtless very much more common than the idiopathic species, as it appears to be the termination of many other diseases.

3178. That fever, be its type what it may, often eventuates in hydrocephalus, we can have no doubt. The eruptive fevers, however, appear to be more special causes of this affection; scarlatina, when epidemic in Europe, we are informed, is very prone to this termination. Cholera infantum, gastrites, and verminous fever,* are frequent causes of this sympathetic disease. Whytt says, "a scirrhus tumour of the glandula pituitaria, may produce hydrocephalus internus."†

Chronic Idiopathic Hydrocephalus.

3179. We have already observed, that this may be the sequel to an acute hydrocephalus; or it may proceed from an hydropic diathesis without requiring any especial condition of the brain itself. This form of the disease has been subdivided, 1st, into idiopathic chronic hydrocephalus, properly so called. This disease is said not to be very rare; and indeed if we take for granted, that every enlargement of the head that takes place after two years, and perhaps up to seven, it might seem to be proved. If this be so, certainly this complaint is not necessarily mortal; as we see children with heads of this kind, grow up to manhood; or we must suppose that the water is absorbed and the cure effected by the recuperative powers of the system alone; or that *mere pressure* from effused serum, is not necessarily productive of death. Sometimes, however, this complaint extends itself, so as to render the head enormous, and at the same time truly hideous; eighteen pounds of water it is said have been found in heads of this kind. This complaint gives rise to various dis-

* When worms infest the alimentary canal, a chronic fever or febricula is sometimes induced; this fever is almost always accompanied by drowsiness; flushed cheek or cheeks; hot head; paleness of face except when flushed; emaciation; cold feet; enlarged abdomen; grinding of the teeth during sleep; startings; frequent application of the hands to the head; picking or rubbing the nose; and squinting more or less confirmed. In this account we see a very close resemblance to the more prominent symptoms of hydrocephalus, and with which it is of course often confounded. We remember a remarkable case of squinting from worms in a little girl of five or six years old. The parents were much alarmed at this occurrence, especially as it had made its appearance suddenly, and the child apparently but little indisposed. After inquiring into the history of the case, we were satisfied that all the symptoms justified the belief that they were occasioned by the presence of worms in the intestines—we ordered her the pink root, (*spigelia*.) in appropriate doses, (see Chapter on Worms,‡) which brought away many lumbrici, and the squinting, and other symptoms, disappeared immediately.

† Works, p. 736.

‡ Diseases of Children.

turbances of the system, the cause of which is easily perceived, but it is not to be removed, with any thing like certainty in any case whatever. The other disease to which we now refer, is, 2d, one that is not unfrequently seen among children of an early age; commencing generally pretty soon after birth, and continuing to an indefinite period.

3180. This form of hydrocephalus indeed, was for a long time the only one that bore the name of chronic dropsy of the brain. Children are sometimes born alive with this complaint, though we have never ourselves witnessed an instance of it, in more than ten thousand cases of births, that we have attended; on two occasions, we were obliged to open hydropic heads,* &c. before delivery could be effected. We have seen this complaint show itself a few weeks after birth, and have known it to proceed to a considerable length; but never to the extent recorded by several writers.

3181. The precise situation of the fluid constituting this disease has not been agreed upon by writers upon this subject. Some have declared that the water was placed between the brain and the membranes, while others say it is found in the cerebral cavities. In a case that fell under the notice of Dr. Craigie lately, it was clearly ascertained, that the fluid was contained within the parietes of the cerebral ventricles. The brain in this case contained a gallon of fluid, and was distended to five or six times its natural capacity. Dr. C. is of opinion, that this affection always "originates as an acute disease in the central surface of the brain." He nevertheless admits the possibility of the fluid getting "out of this situation, and insinuate itself between the outer surface and the *dura mater*;" and says he can "imagine two cases in which this may take place. The first is, when the process of serous effusion commences at a period so early in the foetal existence that it precedes the full development of the brain, suddenly arrest the development, while the *pia mater* and the choroid process communicate freely, and prevents at some point of the mesial plane, cerebral matter from being deposited." The second, "is when the process of effusion has proceeded to such an extreme degree as to lacerate the upper and most attenuated part of the hemispheres." This, however, the Doctor admits is by no means easily effected.—*Edin. Med. and Surg. Journal for July, 1832.*

3182. This disease, we believe, rarely admits of a cure; it is almost always mortal, for death takes place sooner or later perhaps in all cases. A variety of means have been proposed for its

* In these instances, we are of opinion, the children had died some time before birth, as their bodies bore every mark of disorganization.

cure; piercing the cranium with a trocar; salivation; and bandaging. The first plan has nothing but its hardihood to recommend it;* the second, it is said, has succeeded; this was first recommended by the British writers; Brichteau, by this means restored the general health of a child of four years old, but without diminishing in the slightest degree the size of the head. And the late Dr. Jenner spoke favourably of bandaging the head. We tried this plan in one case for a long time, but without the smallest advantage. The history of these two affections, will instantly suggest their own prognostics.

Chronic Symptomatic Hydrocephalus.

3183. This species of hydrocephalus is far from being rare; for independently of the affections which are proper to the brain itself, there are many chronic affections of other portions of the body, that call this mass into action, especially, when about to terminate unfavourably. Thus hooping-cough, asthma, chronic catarrh, polypus of the heart, aneurisms of the great vessels, may cause a serous effusion within the ventricles of the brain, or upon its surface. Drying up old sores suddenly, especially in aged people; and the sudden disappearance of a scrofulous tumour has

* A case of successful tapping of the brain is related by Mr. Russel in the Edinburgh Medical and Surgical Journal, for July, 1832, which we will briefly relate. A little girl aged eight months had chronic hydrocephalus. This head measured twenty-three inches in circumference, and fifteen and a half from the meatus of one ear to the other. Compression, blistering, mercury, diuretics, &c. were tried in vain; the head continued to increase, though the general health of the child appeared good. To discharge the fluid by puncture, was resorted to—a common hydrocele trocar was used. This was “introduced about half an inch in depth on the right side of the anterior fontanelle, and three ounces of serous fluid were discharged through the cannula. A piece of adhesive plaster was placed over the puncture, and a roller applied round the head. She slept well that night, but next day was slightly feverish, and continued so for two days afterwards, when she appeared as well as before the operation.” Ten days after, “the puncture was repeated in the same manner on the opposite side, and five and an half ounces of turbid serum were evacuated, containing several flakes of lymph. No unfavourable symptoms followed.” Eleven days after, the size of the head was diminished two and a quarter inches across the vertex. Twenty days after the trocar was again inserted near the place first punctured, as far as the meninges; half an ounce only passed through the cannula. “I therefore reintroduced it, and entered it obliquely, about an inch and an half in the direction of the ventricle, and upon withdrawing it, nine ounces of serum were discharged in a continued stream.” The wound was closed. The pulse became feeble, and the child faint; but revived soon after, and no further unpleasant symptom followed. She continued improving for three weeks; at the end of this time, the former symptoms returned; an obscure fluctuation could be perceived, at the anterior bregma. She was now gently salivated; absorption followed, with the entire removal of all her hydrocephalic symptoms.

been followed by a similar consequence. In addition to the remote causes of chronic hydrocephalus, many derangements were it important to our subject, of the brain itself, might be mentioned.

Of the Treatment.

3184. There are two principal indications to be fulfilled, in the treatment of the acute forms of hydrocephalus—namely, to overcome the irritation or inflammation which has attacked the brain, so as to prevent effusion; and to endeavour to remove the serum, if effusion has taken place.

3185. The first is to be answered by all the antiphlogistic means in our power; as bleeding, general and local; purging; sweating; topical applications; blistering, and mercury.

1. Bleeding.

3186. We must have recourse to this remedy, so soon as the disease is sufficiently developed, to present us with an active and quickened pulse; or where, from the confession of the patient, when able to make the acknowledgment, that there is head-ache; where we see a corrugated forehead; observe an aversion to light, fretfulness, &c. We are aware that many practitioners are reluctant to bleed in the beginning of this disease, because they have seen all these symptoms disappear upon the child being liberally purged, kept quiet, and upon a strict regimen, without having had recourse to blood-letting. This we admit to have happened—but has it not also happened, that the contrary of this has taken place? where the disease ran a rapid and fatal course; and gave the attendant cause to repent his having neglected this important remedy in the beginning—we at least acknowledge this to have happened with ourselves, and therefore suppose it may have taken place with others.

3187. On this account we now rarely omit to have blood abstracted, either by the lancet, or by leeches. From the arm, whenever there is much arterial action, with manifest cerebral irritation; by leeches, when the symptoms are less palpable, or more moderate; and governed by the same rules, we repeat it, *pro re nata*. Much importance is now attached, to the part on which leeches are to be placed; more perhaps sometimes, than the case really demands. On this point, our selection is usually made, by the opinion we form, whether the symptoms arise from an idiopathic cause, or a sympathetic influence. If we believe it to be the first, we order them to the temples and behind the

ears;* if the second, we suppose them to arise from some irritation in the chylopoietic viscera, and direct them to be placed upon the epigastrium. Itard insists upon their superior usefulness when applied to the lower extremities.

3188. In our employment of blood-letting in hydrocephalus, we are always governed by the *actual* state of the system; and never prescribe for the name of the disease. If the system be prostrated before any cerebral affection manifest itself, we never bleed from the arm; and we use leeches only, where we judge there is a further reduction of arterial action absolutely necessary for the safety of the system. But at the same time, we are in the habit of using other remedies in conjunction with the bleeding; especially to the lower extremities—these remedies may be, warm water and mustard, sinapisms, or blisters. As regards the quantity of blood to be drawn, we can lay down but one fixed rule—namely, to regulate the quantity, by the exigency of the case, and the age and strength of the patient. We are aware that this practical direction, is one very difficult to regulate with any certainty; nor can we lay down any positive directions to aid the discrimination of the young practitioner—for it is a *tact*, only to be acquired by long experience and close observation. We may nevertheless describe situations of the system, in which blood-letting is not indicated, if it be not positively forbidden, but on which much reliance has been placed, especially in the disease under consideration. First, a rapid or very frequent pulse, especially when attended by a warm skin where the body is clothed. Now in this case, one of the last efforts of the system to preserve life by increasing the circulation, and the extrication of caloric, is mistaken for an indication to abstract blood; for these phenomena take place in animals, nearly bled to death. Second, violent throbbing of the carotids. This phenomenon has misled in very many instances the young practitioner, especially,

* The propriety of applying leeches behind the ears, or indeed to any part of the head is very stoutly disputed by Dr. Ballieu; and if we can take his cases as evidence, their application to these parts not only fails to relieve, but really increases every symptom. This does not however accord with our own experience, so far as this can be trusted—or at least, hitherto we have had no reason to suspect an *unfriendly* effect upon the patient; though we have had reason but too often, to lament their want of success—we shall however in future be more attentive to their influence. Dr. B. supposes the injury arises from the transmission of irritation through the course of the nerves to the brain, from the little bites, (*mordillement*,) of the leeches. He says, “J’ai toujours pensé que l’irritation produite à l’une des extrémités des nerfs par le long *mordillement* qu’exercent les sangsues, doit se propager à l’autre extrémité; c’est ainsi que l’excitation des canaux sécréteurs se transmet par continuité de tissu jusqu’aux glands où ils vont aboutir.” p. 9. From this it will be seen that he coincides with Itard, and from whom he perhaps has borrowed the sentiment, without acknowledgment.

after pretty liberal depletion has been practised. But this appearance, like the former, is among the last conservative efforts of the system, for the continuance of life—blood is sped with unusual celerity, and in unnatural quantities to the brain, that respiration may be maintained as long as possible; and to such a degree is this last effort carried sometimes, that in some cases of hydrocephalus internus attended with extreme congestion of the thoracic or abdominal viscera, as well as in exhausting hæmorrhagies, that the vessels of the meninges of the brain have been found turgid with blood, and even watery effusion in the ventricles. But do not let us be understood as declaring, that these phenomena are the result of *debility*, and *require stimuli for their cure*—this we do not believe; for were debility the cause of the accumulation of the blood, or of the effusion of serum, every brain should exhibit the same appearances after death; as death is the greatest possible debility. And though we admit, that further depletion would be injurious, we are every way certain that stimuli would be equally unprofitable—at least we have never seen them useful, when the system had arrived as we supposed, to the condition that required the increase of cerebral circulation, for the continuance of life.

2. *Purging.*

3189. This remedy cannot be dispensed with, in either form of hydrocephalus—in the acute, it is essential, as no other remedy with which we are acquainted relieves the head of its superfluous blood like purging—this effect is not difficult to understand if we call to mind the direct communication of the blood-vessels of the abdomen and the head. Some indeed are of opinion that purging is more to be relied upon than the abstraction of blood—we are also of this opinion *quo ad hoc*; namely, where a morbid condition of any of the abdominal viscera give rise to the cerebral irritation; but where the affection of the brain is really idiopathic, we believe this is not the case. The case related by Cheyne where, “two chamber-potfuls of the most extraordinary fæces,” were brought away is a case in point. But notwithstanding our conviction of the efficacy of purging in hydrocephalus, it must nevertheless be understood, that it is only certainly, and extensively useful, in the idiopathic, acute hydrocephalus, and after the system has been lowered by a previous bleeding, or bleedings. Not so, perhaps in the symptomatic species—in this variety, purging may be of paramount benefit to bleeding, as the case just cited appears to prove.

3190. But in either case we purge—whether bleeding has been premised or not. For this purpose we prefer a few grains of

calomel, followed in two or three hours by castor oil or magnesia, should the calomel not have operated sufficiently. We persist in this plan daily; unless we see some evidence, that this remedy has been carried far enough, by only very small, green, and frequent stools succeeding to their exhibition; or if the evacuations become watery, or accompanied by some of the mucus from the bowels. After a free purging has been instituted, and we think it no longer desirable to persevere in it, we maintain a sufficient action of the bowels by very minute doses of calomel, that is, from a quarter to half a grain every two or three hours, or by small doses of castor oil. It may be proper however, to suggest a caution to the young practitioner here, not to persist too long in cathartic medicines, by reminding him, that in most instances, the stools will appear of a dark-green colour, purge as we may; therefore that further purging is not called for from the mere appearance of the evacuations.

3. *Sweating.*

3191. By sweating, in this place, we would only wish to be understood, the exhibition of such medicine as have a tendency to produce diaphoresis, without expecting a profuse discharge like that, which take place upon the solution of fever of regular type. For though fever is an almost constant attendant on the disease in question, yet it has no uniform termination; but notwithstanding this, we think we have seen advantage follow the exhibition of the tartrate of antimony in minute doses; that is, from the tenth to the twentieth part of a grain, exhibited every two or three hours—or the eighth or tenth of a grain of ipecacuanha at the same intervals.

4. *Topical Applications, and Blistering.*

3192. The topical applications besides blisters, are cold to the head;* pediluvium; and sinapisms. For the first to be successful, the hair should be cut off, or the head shaved—the best mode of applying the water, is by a bladder of large size partially filled with cold water, or ice and water. These applications should not be continued too long at a time; therefore, when the temperature of the head is well reduced, they should be removed, and not again applied until the head becomes warm.

* Ballieu is very suspicious of this remedy; and doubts its agency in the recovery of patients where it had been considered as an efficient means; while he commends blisters in the highest terms, if applied to the lower extremities, and in the early stage of the disease.—*Memoire sur le traitement de l'inflammation du cerveau*, &c. p. 46.

3193. Sinapisms are only proper where there is a reduced pulse, and a tendency in the extremities to become cold—they may then be applied to these parts with advantage, until the skin becomes red, *but no longer*. They may be renewed however, as occasion may require; or when the redness goes off. In these directions however we differ from Ballieu, who thinks them very advantageous in the early stage of the disease, especially when suffered to remain sufficiently long to cause blistering. He says, “how often do we see violent head-ache, even delirium, removed by large sinapisms applied to the feet? and perhaps sinapisms pushed to blistering, are, among the best derivatives; and those in which the pain persists, that is caused by them.” With a view to enforce this practical view, he declares, that a certain child was twice seized with inflammation of the brain; in both instances, the disease was cured by sinapisms applied to the insteps; in neither instance were the sinapisms preceded by bleeding.*

3194. Pediluvium may be had recourse to from time to time, especially if the determination to the head be strong, and the legs and feet rather cold; in the latter case, a little flour of mustard should be mingled with the water.

3195. Blisters are to be applied to the legs and thighs alternately if necessary, as soon as the first stage threatens a conversion into the second; and they may be repeated at the end of the disease. Many prefer the head; but this is certainly an inconvenient part to blister, if it be not an improper one; and if we can place reliance upon our own experience, we have thought it injurious in many instances. To the nape of the neck, is much better as regards effects; but the position is certainly a most fatiguing one to the patient—we have therefore for the last thirty years; rarely applied them to this part; believing most firmly that more advantage is derived from their employment upon the extremities.

3196. After effusion has certainly taken place, we have little to hope for, or to rely upon—absorption we have reason to believe, can rarely take place, from even the anatomical arrangement of the brain itself; and our means to aid this, with our present limited knowledge, is almost confined to one article; namely, *mercury*, freely urged by the mouth, and by the skin. This remedy in such cases, certainly deserves a trial, for as far as the facts can be proved by our senses, and belief, a number have recovered under its use, since it was first recommended in 1775, by Dr. Dobson, of Liverpool.

* Memoire sur le traitement de l'inflammation du cerveau, &c. p. 15.

SECT. II.—HYDROTHORAX.

3197. We have already remarked how much obscurity has hitherto prevailed, respecting both the acute and chronic affections of the thorax; and at the same time took occasion to observe, that the profession is largely indebted to Laennec, Bayle, Andral, &c. for the light which is now spread upon this important class of diseases. We take the present occasion to enforce, what we then suggested, namely, the importance of the study of auscultation, if we wish to arrive at correct diagnoses of the various affections to which the thorax and its contents, are liable. At the same time let us also recommend the study of morbid anatomy, by taking advantage of every opportunity that may present itself, to make post mortem examinations. To these two causes, auscultation, and autopsic examinations, are we indebted for the anatomical character of hydrothorax; for a history of its symptoms, and for the discovery of its infrequency as an idiopathic disease; for such appears to be the fact, while we have been led to believe, from the study of the mere constitutional symptoms, that it is one of very frequent occurrence. Nor is this to surprise us, since auscultation is a very late discovery, and post mortem examinations are comparatively very rare. It must not then excite too much wonder in those who are altogether unacquainted with the one, and very little familiar with the other, when he finds according to Laennec, the extreme rarity of idiopathic hydrothorax.

3198. We have resorted to this author, for information upon this subject, because his account of this disease is the absolute result of autopsic investigations; the only ones that should be considered authentic or satisfactory. It would be idle at the present moment to seek for pathological information from the older writers, upon the subject of hydrothorax; for we could not but be misled, by such an appeal. It is true, they describe with great minuteness and circumstantiality, a disease purporting to be hydrothorax; its diagnostics are attempted to be ascertained and to be faithfully laid down; and the mode of treatment is, formally detailed—the patient dies, and the knife reveals, that there is an affection of the heart, or its great blood-vessels, or some visceral derangement, instead of an accumulation of water in the chest. This is no uncommon occurrence; and this kind of error must necessarily be perpetuated, if practitioners will persist to copy from each other, the details of symptoms purporting to be hydrothorax, but which dissection proves to be altogether supposititious, instead of learning its history and symptoms from an authentic source. It is therefore time that this error should be

exposed, by an appeal to an authority, whose testimony cannot be doubted, and who has only detailed the facts, his knife has discovered.

3199. This author says, "this disease" (Idiopathic hydrothorax,) "is considered by many practitioners, and by extra-professional persons generally, as a very common disease, and a frequent cause of death. When truly idiopathic however, and existing in a degree to occasion death by itself, I consider it one of the rarest diseases; and do not think we are justified in rating its fatality higher than one in two thousand deaths. I have often seen practitioners, who were but imperfectly acquainted with morbid anatomy, and consequently very ignorant of diagnosis, mistake for this affection, hypertrophy of the heart, aneurism of the aorta, irregular consumption, and even scirrhus of the stomach—when there was no coexisting effusion into the pleura, or at least, none other except what took place immediately preceding death." p. 484. In this brief statement we discover the many sources, from which errors may flow, on the subject of hydrothorax. Another however, he says, arises from mistaking the sero-purulent effusion of pleurisy, for the fluid of dropsy—this fact merits particular attention; as it serves to explain the cause of the supposed frequency of this disease.

3200. He further informs us, that "idiopathic hydrothorax commonly exists only on one side. Its anatomical characters are simply an accumulation of serum in the cavity of the pleura; this membrane being quite healthy in other respects; and the lung being compressed towards the mediastinum, flaccid, and destitute of air, as in cases of pleuritic effusion. When the effusion is very great, the affected side is evidently larger than the other. In one case of this kind, the right pleura contained twelve pounds of a colourless and limpid serum, and seemed in other respects quite healthy." This disease is so rare, that Laennec does not think it necessary to say any thing on the mode of cure.

"Signs and Symptoms."

3201. "The chief and almost the only symptom of this disease is the impeded respiration." How different is this simple and indisputable statement from the elaborate, nay, in some instances, eloquent description of a disease, purporting to be hydrothorax? Where is "the sense of weight or oppression referred to the pit of the stomach, starting in the sleep," &c. &c. &c. so frequently recorded? It must be acknowledged that they are not declaratory of idiopathic hydrothorax, though they may accompany the symptomatic form of this disease.

3202. "Percussion affords the dead sound; and the stethoscope

the absence of respiration every where except at the roots of the lungs." Ægophonism also attends.

3203. On the cause of this disease he makes the following interesting remarks, which are corroborative, if not confirmative, of the views we have taken of dropsy in general, and tending much to establish the suggestions lately made by several respectable writers, as Blackall, Parry, &c. upon this disease. "Whatever may be the difference, both in the general symptoms and the organic lesions, between a case of hydrothorax and an acute pleurisy, or between a case of ascites from general debility or organic disease of the heart or liver, and the same disease from an attack of peritonitis; or, in short, whatever may be the difference in general, *between a dropsy and an inflammation*—there can be no doubt that these two affections, so opposite in their extreme degrees, are nevertheless often very nearly allied in their slighter shades. We frequently find amid the serum of ascites or hydrothorax, filaments of a milk-white or yellowish colour, and semitransparent, formed of concrete albumen, almost as solid as false membrane. Thus, for instance, it is not always easy to distinguish between œdema of the lungs from the first degree of peripneumony." p. 486.

3204. From this statement, we think it may be inferred with safety, if not with certainty, that the idiopathic, as well as the symptomatic hydrothorax, is like most other dropsies, only the effects of previous, or existing inflammation. For it is the habit of the serous membranes, wherever situated, to throw out a fluid, whenever irritated or inflamed; and consequently, that our therapeutical views must be based upon the presumption, in most instances, of a still existing inflammation, either active or sub-acute, as in ascites, hydrocephalus, hydrocele, &c. It would also lead us to the conclusion, that the exact degree of inflammation necessary to the formation of idiopathic hydrothorax must be extremely rare; whereas that degree which may eventuate in the symptomatic must be very much more common. Or in other words, from the susceptibility of the pleura to active inflammation, it quickly acquires a degree of it transcending that which would relieve itself completely, or nearly so, by the effusion of serum, and thus form the idiopathic hydrothorax.

Symptomatic Hydrothorax.

3205. Laennec informs us, that this species is as common, as the other is rare. That it may accompany almost any disease; whether that disease be acute or chronic, and its presence announces the approach of death, which it often precedes only a few moments. This is a curious pathological statement; but from the

respectability of the authority for it, we are almost bound to receive it as a fact. And what adds to the peculiarity of this species of dropsy is, that it does not take place more frequently perhaps, agreeably to the same authority, in cases of ascites and general anasarca, than in other diseases—its existence then does not appear to depend upon an hydropic diathesis of the constitution, since it seems to occur as frequently where this does not exist, as when it is present. Hence it is found in those “who die of acute fever, diseases of the heart, or tubercles or cancer of different organs.”

3206. Its symptoms resemble, in every respect, those produced by the idiopathic form of this disease, but they do not discover themselves but a few days, or even hours before death. How different is this statement of Laennec from the impressions generally received of the obstinate character and permanent nature of this disease—is it not a common belief that this complaint may continue for a very long time, nay for years? Whence arises this error? We have partly explained this above; namely, by the infrequency of post mortem examinations, and therefore almost exclusively relying upon constitutional symptoms, for the existence of the disease.

3207. Our author declares in round terms, that “nothing is more uncommon, even in organic affections of the liver and heart, attended by ascites and general anasarca, than to meet with the signs of hydrothorax so long as eight days before death. We may consider this disease as peculiar to the moribund.” Notwithstanding this account runs counter to all our notions of this disease, we are bound almost implicitly to rely upon it, as it is furnished by the most unexceptionable authority; and this circumstance alone will show the value of pathological researches, and incite we trust the student, and young practitioner, to the study of morbid anatomy in all its various relations, with the energy and devotion they so justly claim.

3208. Laennec, as we have already observed, does not propose any treatment for idiopathic hydrothorax, as it is so extremely rare—but he deprecates the conclusion, that it is incurable, because it is complicated with disease of the heart. In proof of this, he relates the case of a woman, who had, besides effusion in the left side of the thorax, hypertrophy and dilatation of the heart, who was cured of the hydrothorax by the acetate of potash, to the amount of an ounce to an ounce and an half daily, as also nitre in doses increased from one to two scruples. This patient returned to the hospital a year after, affected with acute pleuro-pneumonia of the right side, of which she died—on examining her after death, the left lung was found perfectly free from adhesions.

3209. It would not perhaps be either fair or safe, to draw any positive conclusion from this case, as regards the cause of hydrothorax—yet it would seem to justify the inference, that affections of the heart are not necessarily the cause of this disease, when they exist in combination; or that it is instrumental even in maintaining it, when it may have proceeded from another cause; for this woman was relieved of the effused serum by the remedies employed, and which did not return, though the disease of the heart persisted. In this case diuretics and purgatives were alone resorted to; and the general treatment is precisely like that of chronic pleurisy, of which we have already treated, and which see, p. 492.

3210. It may, however, be proper to mention the high character that digitalis has obtained in effusions of the chest—by some it is looked upon almost as a specific; and all seem to agree that it is almost uniformly successful in carrying off water or the effused fluid from this part more certainly than any other remedy, at least for a time. For this purpose it is said that large doses are required, and its best form is that of infusion. We have, however, always had some dread of this medicine; and we would recommend a close attention to the pulse, head and stomach, during its administration—if the pulse become preternaturally slow, if the head is found to be confused or giddy, or the stomach very sick, we would diminish the dose, or suspend its use altogether.

SECT. III.—ASCITES, OR ABDOMINAL DROPSY.

3211. When water occupies the abdominal cavity, it is called ascites, and is generally found to result, from visceral derangement, protracted miasmatic diseases, sudden cold, obstructed catamenia, too frequent indulgence in alcoholic liquors, chronic diarrhœas, &c. but more especially, it is supposed by many, to arise from previous peritoneal inflammation.

3212. The disease may take place suddenly, or more slowly, according to the nature of the remote cause and predisposition of the body—it is most apt to occur suddenly in young subjects; and especially, in young females before puberty, when they have been affected by a previous acute disease, as an intermittent, or a remittent fever; more slowly in more aged persons. In two instances, we knew this form of dropsy come on pretty rapidly, as the marks of puberty were declaring themselves; but in which the catamenial discharge did not take place, until this complaint was removed. Was this occasioned by any particular excitement of the ovaries at this time? Or was there a transfer of the cata-

menial excitement to the peritoneum, urging it to the effusion of serum, or the secretion of lymph? In the cases just alluded to, there was no previous ill health to account for this affection; for in both instances, the young ladies' health did not appear to change, until after the abdomen was observed to swell.

3213. When this disease is the consequence of previous ill-health, and especially when this is from diseased viscera, the complexion is sallow, the flesh soft and oftentimes doughy, the skin dry, the bowels costive, or too open, urine scanty and loaded, appetite bad, digestion impaired, listlessness, &c. These symptoms are sooner or later followed by a sensation of stiffness, first observed by the patient when about to stoop, and soon after the abdomen is perceived to swell, the respiration hurried upon any quick motion, and particularly upon going up stairs.

3214. The feet and ankles, especially towards night, may be observed to swell, and again disappear during the night. This, however, is not a constant symptom, for we have known it to be absent in a number of instances of confirmed ascites, even where paracentesis has been performed. There was no swelling of the limbs in either of the cases of the young ladies above mentioned; nor is it an attendant upon a case we have now under care. This is a female near fifty years of age, and with whom the menses have been several years absent; the cause of the dropsy is very uncertain.

3215. The swelling is ordinarily first perceived in the epigastric region, but it gradually extends over the whole abdomen. If the case be complicated with anasarca, this is also found to augment, and as the disease progresses, much additional inconvenience is experienced; the skin is very dry and husky; costiveness; mouth clammy; thirst intense sometimes; cough occasionally, and without expectoration; breathing frequent, sometimes laborious, particularly when in a recumbent position. As the distention of the abdomen increases, the symptoms depending upon it augment; eventually the cellular tissue of the whole body becomes filled, in which the thorax participates, and thus produces universal dropsy.

3216. In the beginning the pulse is active, and corded most generally, but at other times it is feeble and frequent. Eventually hectic irritation ensues. The patient now declines rapidly, emaciation becomes extreme, diarrhœa, difficulty of breathing, red tongue, aphthæ, and almost an entire suppression of urine; what little there is, is high-coloured, and perhaps offensive; extreme exhaustion, and death.

Diagnosis.

3217. Notwithstanding the strongly-marked character of ascites, pregnancy has been mistaken for it, and the reverse. In these cases, we are disposed to believe, that much carelessness must have prevailed, as they have no symptom in common that should be mistaken, if we except swelling. But the evident and decided fluctuation of ascites can never be mistaken, by one who has ever struck the abdomen with the view of producing it. Pregnancy can only be confounded with ovariah or encysted dropsy, and this not readily by one ordinarily skilled in obstetrics, which, if he be not, it becomes a duty to consult one who is, before he proceeds to measures that might endanger the fœtus in utero. Even in complications of pregnancy with ascites, little embarrassment need occur; since a well-directed inquiry, and an honest history of symptoms, will very certainly lead to the discovery of the simultaneous existence of the two conditions. For in such cases, the rational signs of pregnancy will be present, or have existed in fewer or greater number; such as the suppression of the menses; the gradual intumescence of the *lower* part of the abdomen; morning sickness or vomiting; the swelling of the mammæ; the areola round the nipple; and the motion of the child, will all serve to distinguish the two conditions. To these we might add, the history of the woman's situation, before the swelling made its appearance—for the absence of any of the remote causes of dropsy would very much strengthen the case.

3218. Tympanites can rarely be mistaken for ascites, by one at all accustomed to sound for dropsy—authors make two species of tympanites; one intestinal, the other abdominal; but it is only with the latter that ascites can be confounded. In this species, if the belly be struck with one hand, while the other, (opened,) is laid flat upon the abdomen, no fluctuation will be perceived, and the stroke will yield a hollow, or cavernous sound; while the stroke, in ascites, gives a dull heavy sound. In tympany, besides, the abdomen is tender to the touch, from its being so violently stretched; moreover, the tumour is elastic.

Prognosis.

3219. This will generally be unfavourable in proportion to the extent, nature, and duration of the disease. If ascites be complicated with anasarca, or hydrothorax, the chance of recovery is small, whatever may have been the previous strength of constitution; if it originate from visceral obstruction, the chance is still less; and if the disease has been of long standing, and no

amendment from the steady use of well-directed means; if the patient have been enfeebled before, by chronic or acute disease; if the patient be old, extremely emaciated, have hectic, aphthæ, and diarrhœa, the case may generally be looked upon as hopeless.

3220. On the other hand, if the patient be young, vigorous, and until now healthy; if the remedies employed against his disease act favourably upon the kidneys, producing copious discharges of urine; bowels free, and the stools watery; the skin soft; fever diminishing, and if there have been visceral obstructions, and they yielding; complexion improving; thirst abating; tongue cleaning, and the abdominal tumour subsiding, we look upon the chance of recovery as very much improving. But notwithstanding these favourable signs, we must confess, we have seen them vanish, and this at a moment least looked for—we must therefore regard dropsy of the belly always as a disease of danger.

3221. Perhaps children may be looked upon as exceptions to this rule, in most cases—we have seen a good many cases of dropsy, from childhood to puberty; and we do not recollect but two instances of death; one of which was from a dropsy consequent upon scarlet fever; the other arose from a stricture in the colon in a boy of four years of age—this case was seen by my friends Drs. Physick and Randolph.

Post Mortem Examinations.

3222. These examinations almost constantly prove, either the previous existence of peritoneal inflammation, more or less extensive, or the disordered state of the several abdominal viscera. The liver, the spleen, the pancreas, one or all are found enlarged, hardened, tuberculated, &c. The mesenteric glands are almost constantly found enlarged, and hardened, and numerous adhesions of the intestines with each other, or with the peritoneum. The kidneys suffer variously; altered in size, disorganized, &c. The heart itself does not escape; and as a consequence, it is often found diseased; but when it is previously diseased, it may become also a cause of dropsy.

Treatment of Acute Ascites.

3223. It is sufficiently well established at present, that there is a species of dropsy, which is attended with high arterial action, and consequently, requiring antiphlogistic remedies, for its relief. It is therefore without hesitation, that we propose blood-letting, as a valuable remedy in this disease. By this remedy,

very important purposes are fulfilled; namely, 1st, a reduction of arterial, febrile action; 2d, an abatement of local inflammation; and 3d, it insures an increase of activity in the absorbent system. The two first of these advantages will be readily admitted; while the third may surprise some, or be doubted by others, who not aware of the fact, that absorption never goes on so rapidly, as when the blood-vessels are comparatively empty.

3224. This curious physiological fact, is of great practical importance in the treatment of dropsy; and however reluctantly it may be admitted by a class of practitioners who always treat dropsy by stimulants, it is nevertheless indisputable, and of immense therapeutical value. We therefore do not hesitate to recommend blood-letting, in the treatment of one species of this complaint. This, however, is no new practice; on the contrary, we believe it to be coeval with medical record; it is the one, by which Botellus acquired so much reputation, for the cure of dropsy. But in employing venesection for the cure of this complaint, we must be regulated as in every other instance of disease, by the condition of the system—that is, we must part with the hypothesis, that dropsy is always a disease of weakness, and that the excitement, (which cannot fail to be recognised,) that so often accompanies it, is accidental, or evanescent, and believe, that the pulse when high in dropsy, requires lowering, as much as in any other disease in which this state exists. Therefore, when the pulse is too active, it must be reduced; but only then; and whenever this condition is renewed, it is to be taken down, again and again, as often as this condition recurs, or so long as it may continue. But on the other hand, if this do not exist, blood-letting is not to be prescribed; therefore, the pulse should be as regularly consulted, and its indications as regularly and as implicitly obeyed, as in any other disease; for it is but by this means, that we can abstract blood, or stimulate with any certainty or advantage. Bleeding, however, in this disease, is not to be exclusively confined to general abstraction; for the local, oftentimes becomes equally important. Therefore, when there is local pain, or general soreness in the abdomen, much advantage is derived from leeching or cupping. As collateral evidence of the utility of blood-letting in dropsy, we might mention, the immense advantage that has been sometimes derived from hæmorrhagies, either spontaneous, or from wounds; and as corroborative, though weaker evidence, we might mention, the sizzly condition of the blood, when drawn from the arm.

Regimen.

3225. The quality of the food should be made to conform to the general indications which the nature of the disease presents—in the active dropsy, an antiphlogistic regimen should be ob-

served; if the passive, a more stimulating diet may be permitted. Dropsy is almost always attended by so much thirst, as to make the patient clamorous for drink, and especially water. This indulgence is forbidden for the most part, from the notion that the patient "has already had too much water." But no positive rule can be laid down upon this subject, as we may imagine cases where it might be proper to withhold water or other fluids; or at least, prevent an excessive exhibition of it. Dr. Cullen informs us that dropsies have been cured by the free use of diluent drinks; and we shall presently mention, (par. 3236,) the case of Gen. Young, who appears to have been cured of an inveterate dropsy, by large draughts of cold water. We have never witnessed any injury follow a reasonable use of liquids in dropsy, and we therefore do not prohibit a moderate indulgence in any aqueous drinks.

Purging.

3226. We believe that purging is resorted to by all practitioners, be their notions of the nature of dropsy what they may. This is an important practical concession, since the utility of this operation, if we regard the welfare of the patient, must not be called in question. They not only promote absorption, but subdue fever, and remove a state of constipation, that is highly injurious. In declaring this, it must not be understood, that there is no choice in the means by which this is to be effected—on the contrary, much depends upon a proper selection of the articles for this purpose. For in this form or species of dropsy, the drastic articles must be carefully avoided; such as the elaterium, scammony, colocynth, croton oil, gamboge, &c. And the milder purgatives be had recourse to.

3227. The cremor tartar and jalap,* answer admirably well; magnesia and Epsom salt,† and castor oil, in ounce doses, are also very proper; and even the common neutral salts may be employed with advantage, as they are very sure to procure copious watery stools.

* R. Crem. Tart.	- -	ʒij.	Take Cremor Tartar	3 drachms.
Pulv. Jalapi	- -	ʒss.	Powdered Jalap	½ drachm.
M. div. in iij.			Mix and divide in three parts.	

One of these to be given every four hours until they operate freely; and to be repeated as occasion may require.

† R. Magnes. alb. ust.	} aa	ʒij.	Take Calcined magnesia	} each three
Sulph. Magnes.			Epsom salt	} drachms.
M. div. in iij.			Mix and divide in three parts.	

One every two hours, mixed in a wine-glassful of lemonade or water, until they operate freely; to be repeated as occasion may require.

Diuretics.

3228. We are obliged to have recourse to these remedies, in alternation with purgatives, or even sometimes simultaneously. This class of remedies derive their efficacy from their action upon the kidneys and absorbent system.

3229. There is no less variety, than ehoice, in the articles that act upon the kidneys; but unfortunately the selection cannot be made with as much certainty as from among the cathartics—for diuretics are by no means so constant in their operation upon the kidneys as would be desirable. We are therefore often under the necessity of changing them—they really appear sometimes to deserve the character, almost, of being whimsical in their operations; that is, they will perhaps succeed to-day, and fail to-morrow, and the reverse. Or one will answer for a time, and then cease to affect the kidneys any longer; in which case, we are under the necessity of choosing another, and sometimes, another; but fortunately on the other hand, we have a number to select from.

3230. In the inflammatory or acute dropsy, the following appear to answer best; cremor tartar;* soluble tartar;† nitre;‡ acetate of potash; and scabious.§ All the tartrites appear to possess very decided powers over the urinary organs, and should alternately be made trial of, as one or other may fail. Nitrate of potash has long been celebrated for its diuretic virtues, as well as for its antiphlogistic powers; and on this account often merits the preference; this is particularly so, where there is pretty strong evidence of active inflammation remaining. It however carries with it one serious objection; it very frequently disagrees with the stomach, when given in sufficiently large doses. We generally exhibit it as directed, for chronic rheumatism.

3231. Emetics have sometimes been employed in dropsy—we have never used them; nor can we learn that they possess any uncommon efficacy.

3232. These are the principal remedies in the active state of dropsy; but as this character may be lost, either from the nature of the remote cause; or from bad treatment; or from peculiarity of constitution, it will be necessary to give an account of the remedies, that have been found most successful in this passive stage or state of this complaint. This species must be determined by the state of the pulse, principally—in this case it will be found small, rather frequent, and soft. There will be no febrile and paroxysmal movement, unless it has run on to hectic. There is

* Super-tartras potassæ.

† Potassæ tartras.

‡ Potassæ nitras.

§ Erigeron philadelphicum.

often a disposition to diarrhœa, or rather a frequent inclination to discharge the bowels; the tongue is generally clean; thirst considerable almost always, and sometimes intense; no tenderness of the abdomen, unless pressed very hard; urine very scanty, but of various colours. The skin dry and hard, and not unfrequently cough, of considerable frequency, especially on first lying down. But the pulse is the surest guide.

Purging.

3233. The more active cathartics appear to answer best in this species of dropsy—indeed, those commonly called drastic are usually employed; such are those we prohibited in the active dropsy. The most common are the gamboge, scammony, elaterium or the elatin, and the croton oil.

3234. The gamboge* perhaps, is the least exceptionable, as it is equally active as the other, without their griping property; and if given in solution, and not in too large doses, it acts with much certainty and mildness. The scammony is active, but is very apt to gripe; and has no one advantage over the gamboge—it may however be occasionally resorted to, when the gamboge may have lost its effects. Elaterium and elatin,† are more drastic in their operations, but oftentimes very certain in carrying off water; they act sometimes with the speed of the trocar, and more rapidly than scarifications.

3235. Dr. Physick and myself attended a gentleman labouring

* The following formula was communicated to me by Dr. Alberti, of this city; with the effects of which, in the three trials I have made with it, I have had great reason to be satisfied with:—

R. Gum. guttæ gamb.	-	℥ij.	Take Gamboge	-	2 scruples.
Potassæ tartras	-	3j.	Soluble tartar	-	1 ounce.
Sacch. alb.	-	℥ij.	White sugar	-	2 drachms.
Aq. font.	-	℥vj.	Water	-	6 ounces.
f. sol.			Dissolve.		

Of this a table-spoonful is to be taken, every two or three hours until it operate freely—to be continued as necessity may demand.

† The elatin is generally given in the form of pills—

R. Elatin	-	gr. ss.	Take Elatin	-	½ grain.
Pulv. rhæi	-	gr. viij.	Powdered rhubarb	-	8 grains.
Conserv. rosar. vel syrup.	q. s.		Conserve of roses, or syrup, suf-		ficient to make into 8 pills.
M. f. pil. viij.					

One every four or six hours, until they operate sufficiently—to be repeated when necessary. Or the elatin may be taken in combination with gamboge, as follows:—

R. Pulv. g. guttæ gamb.	gr. iv.	Take Powdered gamboge	4 grains.
Elatin	gr. ss.	Elatin	½ grain.
Sp. æther. nitros.	3j.	Sweet spirit of nitre	1 ounce.
Aq. font.	℥iv.	Water	4 ounces.
M.		Mix.	

A table-spoonful every two or three hours until it purge freely.

under universal dropsy, and for which almost every cathartic and diuretic, had been tried in vain. Dr. P. proposed the elatin; and a sixteenth of a grain, was ordered once in four hours. The third pill operated powerfully by the bowels; and continued to do so, for eight and forty hours, and at the end of which time, there did not appear to be left in any part of the body, a drop of extravasated fluid; gallons had been evacuated—every unpleasant symptom had yielded; the patient could lie flat in his bed; orthopnoea was removed; the abdomen flaccid, and the extremities emptied of water; and of course hope was entertained of eventual success; but alas! all this improvement was but temporary—every part again began to fill, nor could we renew the operation of the medicine, though its quantity was increased, and the periods of its exhibition shortened—the patient died a few days after in great suffering; indeed there was almost suffocation. Leave could not be obtained to examine the body.

3236. May we justly or not, doubt the agency of the elatin in this case, because subsequent good could not be procured from its use? Was this one of those remarkable coincidences, where nature achieved the good, and medicine received the credit? Is this doubt strengthened by the case of General Young, in whom “shortly after drinking freely of cold water,” (in the last stage of a dropsy for which he had been tapped,) “a determination to the kidneys took place, succeeded by the most copious urinary discharges; at least two gallons in the first twenty-four hours; and this effect continued until the whole water was completely evacuated from the system?” *This gentleman, however recovered.**

3237. Of the croton oil, we can say nothing in dropsy—we have tried it in but one case; in this, it did not act as a hydragogue, though exhibited in pretty free doses—its further employment was suspended. We can however readily believe, it will occasionally answer a valuable purpose.

Diuretics.

3238. Contrary to all reasoning, the most valuable diuretic in this species of dropsy, is the digitalis;† and if we can place re-

* Appendix to Blackall on Dropsy, p. 253.

† The following is considered a good form for the exhibition of digitalis:—

R. Infus. digital. pur.	℥ss.	Take Infusion of foxglove	½ ounce. ‡
Acid. tartar.	- ʒj.	Tartaric acid	- 1 scruple.
Carbon. sodæ	- gr. xxiv.	Carbonate of soda	24 grains.
Sp. nitros. æther.	- ʒj.	Sweet spirit of nitre	1 drachm.
Tinct. scillæ	- gut. iv.	Tincture of squills	4 drops.
Aq. menthæ	- ʒij.	Mint water	- 2 ounces.
M.		Mix.	

This quantity to be taken twice or thrice a day.

‡ The infusion of digitalis is made by infusing one drachm of the dry leaves, in eight ounces of boiling water for four hours. When strained, add one ounce of any spirituous water to preserve it.

liance upon the observations of others, this is the appropriate condition to display its immense diuretic properties. As regards our own experience, we have little to say in its favour. It nevertheless always deserves a trial, after a sufficient reduction of the system. It has been observed however, for digitalis to be useful, it must be given in such repeated doses, as will permit an accumulation of it in the system. In large doses its effects are transient, besides distressing the stomach and nervous system excessively. Of the squill as a diuretic, we can add nothing new; its character is well established in this complaint; but perhaps more especially in hydrothorax.

3239. The guaiacum* has also its reputation as a diuretic, and as a hydragogue—of this medicine we can say much that is favourable in asthenic dropsy, and especially in those consequent upon obstructed catamenia, without fever; indeed, in such cases it is our main dependence, and it rarely disappoints. We therefore recommend it with considerable confidence.†

* The best form of the guaiacum is in tincture—the following is the formula we employ—it differs in nothing from the formula, we have given for rheumatism, except the proportion of the aq. ammon. puræ is larger.

R. Pulv. g. guaiac.	-	-	3iv.	Take Powdered guaiacum	4 ounces.
Carbon. sodæ	-	-	3ij.	Carbonate of soda	2 drachms.
Pulv. pimento	-	-	3j.	Powdered allspice	1 ounce.
Sp. vin. ten.	-	-	℥bj.	Proof spirit	1 pound.
Dig.				Digest.	

To this must be added the pure ammoniated water, as it is wanted, in the proportion of two drachms to every four ounces of the tincture—from two drachms to half an ounce, every morning, noon, and evening, in any white wine; increasing the dose if necessary, until it operate as desired.

† Mr. Van Roosbroeck of Louvain, in a letter to Broussais, recommends the use of nitrous oxide gas for the cure of ascites.—“The first patient to whom M. Roosbroeck administered the remedy, was a man, in the hospital of Louvain, fifty-two years of age, who, for two years and a half, had suffered from ascites, which appeared to depend upon a disease of the heart, on account of the irregularity and intermittence of the pulse, and the obstructed respiration which had been present from the commencement of the disease. For two years all imaginable means had been tried to produce the absorption of the fluid effused in the abdomen. Finally, paracentesis was resorted to, but which, far from relieving the disease, seemed to augment its activity; for after each operation the fluid was more promptly produced, so that the seventh time, twenty-four hours after the operation, the abdomen was as tense, and fluctuation as manifest as before the operation. If paracentesis was longer delayed, the extremities and the face became speedily blue and infiltrated. The eighth time that his abdomen was evacuated, atmospheric air was injected into the cavity, but without any effect. Seeing that the disease had for two years resisted all remedies, M. Roosbroeck determined to inject into the peritoneal cavity some nitrous oxide gas, after the fluid should be evacuated. He first ascertained, by an experiment upon a rabbit, that the action of that gas upon the peritoneum was not injurious. September 17th, 1830, after entirely evacuating the fluid from the abdomen, the quantity of gas produced by the decomposition of two drachms of nitrate of ammonia, was collected in a bladder, and injected into the abdomen through the cannula of the trocar. During the night the patient was warm, and sweated much, which had not happened to him before for two years;

SECT. IV.—ANASARCA.

3240. There are two varieties of dropsy that still remain to be considered, namely, anasarca and œdema.

3241. The first may be considered as a dropsy of the cellular tissue of the body, but particularly evident when it occupies the stratum immediately under the skin. It is characterized by a swelling commencing generally in the feet and ankles; and is especially augmented in the evening, unless the patient be confined to a horizontal position. During the night it generally disappears, but resumes its position during the day. The swelling is soft and yielding, retaining the impression of the finger for some time.

3242. After some time the swelling is found to mount upwards, and eventually to spread itself over the whole body; when this happens, much inconvenience is experienced; the action of the muscles are impeded, giving the sensation of confinement. The breathing is also disturbed in some severe instances, and even cough is occasionally provoked.

3243. The bowels for the most part are constipated; the urine high-coloured and scanty; the skin dry, and usually cold, especially if the distention be considerable. But before this takes place, it frequently is warmer than natural, and particularly towards evening; the tongue is white, almost always pale, and thirst oftentimes very great.

3244. When the cause of anasarca is continued for some time, and the serous effusion continue, the tumefaction of the legs, and more particularly the upper surface of the foot, becomes enormously distended, threatening a solution of the continuity of the skin; before this happens, however, a number of vesications filled with serum make their appearance, which after a while discharge themselves, leaving leakages through which the fluid in the cellular membrane discharges itself. This takes place, we think, most commonly where there are mechanical stoppages to

and he had besides passed as much urine as he usually did in four days; but he complained of some pain in the abdomen. From that period the patient's abdomen did not increase in size; it became even smaller than the day after the operation; he experienced no pain in it; the patient's pulse, however, continued irregular.

"M. R. has tried the remedy in two other cases, but without such marked benefit; copious perspiration and urination were, however, induced by it. M. Broussais has also employed it at M. R.'s suggestion, but in a very unpromising case; no injurious effects, however, resulted from the introduction of the gas into the peritoneal cavity. The remedy seems to be worth a further trial."—*American Journal of the Medical Sciences, for May, 1832, from the Annales de la Médecine Physiologique, for August, 1831.*

the returning venous blood from the extremities, be these from pregnancy or visceral enlargements.

3245. In the commencement of this disease, as might be inferred from what has been said, a febrile movement of the system may be observed; at other times this does not take place until the distention of the skin upon the feet and legs is very considerable, and threaten erysipelatous inflammation, or this has actually occurred.

Causes.

3246. Anasarca has followed from a variety of causes, some of which are sufficiently obvious, while others are extremely obscure. It seems in many instances to be invited from whatever will suddenly weaken the body, as hæmorrhagies,* fevers, diarrhœa, &c.; particularly if errors of diet have been committed, or such as will urge the arterial system to unusual action. Sudden checks of perspiration. Certain fevers, as scarlatina, or measles; it is also produced by certain gastric irritations, as in urticaria, and from the exhibition of arsenic. It is not an unfrequent sequel to the habitual and inordinate use of spirituous liquors; and sometimes the consequence in females of uterine derangements, as amenorrhœa, cancer uteri, &c.

Œdema.

3247. Œdema is a partial anasarca, and may be confined to the limbs, or to portions of them. This swelling, like anasarca, pits upon the pressure of the finger, which pit remains a longer or shorter time; this swelling may undergo the several changes above enumerated, though it is not generally, indeed very rarely, attended by fever.

Causes.

3248. The causes may be, in an inferior degree, the same as for anasarca; but most commonly it arises from mechanical re-

* Anasarca, or dropsy, are frequently the consequences of profuse, chronic hæmorrhagies. In these cases the circulating fluid is but little more than serum, or at least the crassamentum bears but a small proportion to it. How shall we account for this increased effusion or diminished absorption? do Dr. Parry's views explain it? He says, "when dropsy is associated with large hæmorrhagies, it does not usually accompany them, but comes on after they have ceased; and I have concluded, it is the effect of the fluids taken into the stomach being absorbed too suddenly for the relative state of the vessels, which therefore strive, if I may be allowed the expression, to get rid of it by every outlet."

moræ, as in pregnancy, from ligatures, swollen glands in the groins or axillæ, and also from paralysis. When this happens, the swellings are confined to the affected side.

3249. This affection, though confessedly dropsical, is not generally dangerous, and perhaps never so, but when the causes which have produced it are of themselves irremediable. When it complicates ascites, or hydrothorax, it must be looked upon but as a symptom consequent upon a hydropic diathesis, which, if incurable, so will be anasarca, generally speaking. We say generally, for this is not constantly so. Dr. Chapman, Dr. Hays, and myself, attended a gentleman from whom every vestige of anasarca was removed, though he died of visceral obstructions, producing effusions in the abdomen and thorax. Œdema, we believe, is never dangerous in itself, and seldom from any cause, unless gangrene supervene.

3250. From what has been said on hydrothorax, we must receive with some caution the œdematous swelling of the feet and legs, as a symptom of this affection. Nor must we look upon it as an unpromising symptom, even when excessive, during pregnancy, as it almost always subsides a few days before labour, or very soon after.

Treatment.

3251. The treatment of anasarca and œdema is so analogous to that of the other dropsies, that it requires no additional observations upon this point; for like dropsy it must be treated accordingly as it may be idiopathic and acute, or as symptomatic and chronic. But like ascites, it may require tapping—the propriety of this is disputed by some, but not upon sufficient grounds. For we are persuaded much less mischief is likely to follow a few distant punctures with the point of a very sharp lancet, than from permitting the distention to go on to bursting. When this is allowed, the most extensive and serious mischief sometimes arises, which we have never witnessed when punctures have been early and judiciously made. We say early; by this we mean before the skin has almost lost its life; and when we find that the remedies we are employing do not prevent the further accumulation of serum. In a number of instances of anasarca, attended by excessive distention, we have seen the happiest results follow the puncturing of the most tumid parts.

CHAPTER XIV.

HÆMORRHAGIES.

3252. DR. CULLEN has divided hæmorrhagies into active, and into what he calls "a well-founded distinction," passive. He thinks fever essential to the first variety, and its absence to the second. We have no hesitation to admit, that hæmorrhagies may exist with either of these conditions of the system; provided this concession be not construed into the admission of one of Dr. Cullen's distinctions of hæmorrhagies; that is, the passive; this it is said is owing to the weakness or want of power in the blood-vessels to retain their contents—a kind of leakage of blood from the patulous mouths of the blood-vessels; and therefore takes place, without any increase of action of the vessels that pour out this fluid.

3253. To this doctrine Broussais demands, "if this were really the cause of hæmorrhage, why does it not always take place in the last moments of existence, where weakness, (*asthénie*,) is at its height; and why does not the whole mass of blood then discharge itself by the capillaries of the body? Now do we not observe on the contrary, that *petechiæ* become pale as death approaches? For in this terrible moment, the contraction of the exterior capillaries drive back all the fluids to the interior viscera."*

3254. Dr. Caldwell makes the following pertinent observations on the "passive hæmorrhagy," in a note on this chapter in his edition of Cullen's Practice, Vol. I. p. 426. "The division of hæmorrhagies into '*active and passive*,' recognised by our author in this article, is utterly unfounded, and ought to be rejected from pathological science. The phraseology leads to a physiological error. The expression '*passive hæmorrhagy*,' as applied to living matter, is a gross misnomer. During life, no hæmorrhagy can possibly be passive. Blood flows from the vessel that contains it, at least in part, by means of the action of that vessel. Nor is it possible for such action to cease, otherwise than by the cessation of life in that part. But the cessation of life is the commencement of gangrene. A hæmorrhagy really passive, therefore, cannot take place except from gangrenous vessels. But from such vessels, unless they be very large, blood

does not flow at all. The reason is obvious. They act on the blood which they contain like dead matter, and we well know that the action of dead matter on blood forces it to coagulate. Hence, in the vessels of a gangrenous part, the blood does coagulate, and prevents the hæmorrhagy that would otherwise ensue."

3255. "Every hæmorrhagy, therefore, that does or can take place from the living body, is really an active one. It arises not from the absolute want of action in the part, but from its wrong action. The vessels *dilate*, or rather *contract* and *dilate alternately*, when they ought to *contract only*, and thus prevent the escape of the blood they contain."

3256. In asthenic diseases when attended by hæmorrhage, and in which there might be a plausible pretext for the supposition that they depended upon debility or a loss of power, Broussais says, in such cases "we may ask where resides the force that thus overcomes the resistance of the sanguineous capillaries; shall we place it in the heart? No, for this is struck, according to Brown, with profound asthenia. May it reside in the blood? No, for this would be to suppose it possessed an action independent of the vessels which contain it." p. 129.* We cannot therefore adopt the opinion, that there is an hæmorrhage independent of the action of the blood-vessels.

3257. Notwithstanding we cannot yield to this division of Cullen and others, we are nevertheless perfectly convinced, that there is a "pyretic, and an apyretic" hæmorrhage, (to adopt the terms of Dr. Caldwell,) and which will necessarily require a modification of treatment, though they are virtually the same, as regards the local action.†

3258. As we know no histories of symptoms more faithful than those of Cullen, in the general, we shall very much adhere to them; reserving to ourselves the right to differ with him, should any occasion occur in which we should judge this necessary.

* He therefore lays it down as an axiom, "toutes les hémorrhagies qui ne dépendent pas d'une violence extérieure et qui sont spontanées, sont actives, quelle que soit la faiblesse du sujet."—*Examen. des Doct. Med. Prop. cxcviii.*

† "The local phenomena are of a similar character, whether the flow of blood be, or be not, accompanied with febrile symptoms; the part which is the seat of the hæmorrhage, continues still to possess increased heat and redness, excepting, that after the discharge of blood has continued for a certain time, the local symptoms diminish of course, in intensity."—*Condie on Hæmorrhages*, North Am. Journ. Vol. 3d, p. 252. To which we have much pleasure in referring the reader, for a complete refutation of the doctrine of passive hæmorrhage, and also a clear and satisfactory exposition of the doctrines of many of the late and present French pathologists, upon this intricate and interesting subject.

Phænomena of Hæmorrhagy.

3259. Hæmorrhagies are most common in plethoric habits, and in the sanguine temperament. They are besides more frequent in the spring, or in the beginning of summer. Sometimes these discharges are preceded by symptoms, which declare them about to take place—as a sense of tension or fulness in the part from whence the blood is about to flow. A swelling, some redness, and sense of heat or itching, have been sometimes observed in parts which come under our view. A sense of weight and heat, and various pains, have been experienced, when it is an internal part that is the seat of the hæmorrhagy. To these may be added a stage of pyrexia, during which time, blood of a florid colour flows in a greater or lesser quantity, and for a longer or shorter time, but generally until the pyrexia itself ceases.

3260. During this time, the pulse is frequent, quick, full, and often hard; but, these conditions will diminish as the blood flows. Blood drawn at this time, shows the inflammatory crust. Hæmorrhagies from internal causes, are apt to repeat themselves, at certain intervals or at stated periods; but we have never had sufficient cause to believe in the agency of the moon to produce these phenomena. Dr. Cullen does not appear to have been acquainted with the intimate relationship between hæmorrhage and inflammation, though he declares “there are purely topical hæmorrhagies, as there are purely topical inflammations;” Bichat however and others, have most satisfactorily traced their analogies. We shall not stop to inquire into the truth of Dr. Cullen’s ingenious speculations on the “Proximate Cause of Hæmorrhage;” we shall merely observe, that he has admitted every phenomena that would be required, by the modern pathologist, in the active hæmorrhagies; and we believe, that had he lived to have examined the present reasonings and proofs against the passive, he would have cheerfully given them up. And we shall only add further, that modern research, both faithfully and ably conducted, have never yet detected any lesion in the vessels from which the blood escaped.

Proximate Cause.

3261. Chomel says, “there remains in the present state of our science, but one mode of explaining the effusion of blood; it can take place only through the vessels which pour out the mucus, the serum, &c. on the surface of the different mucous, serous, and other tissues—vessels, the existence of which cannot be

doubted, though we are ignorant of their structure and arrangement.”*†

Remote Causes.

3262. Broussais declares the “remote causes of spontaneous hæmorrhagies to be the same as those of inflammation.” Dr. Cullen says they are external heat; a diminution of atmospheric pressure; whatever increases the force of the circulation, as bodily exertion or mental agitation; violent exercise of particular parts of the body, provided such parts “are already affected with congestions, or liable to them;” postures of the body increasing determinations, or ligatures occasioning accumulations of the blood in particular parts of the body; a determination into certain vessels rendered habitual by the frequent repetition of hæmorrhagy from them; cold, externally applied, as changing the distribution of the blood; full feeding, and the too free use of spirituous liquors; suppression of customary evacuations; peculiarities of constitution transmitted from parent to child.‡

3263. “In all cases of hæmorrhage, two conditions of the capillary and exhalant systems may be remarked. *First*, In the

* Condie on Hæm. loc. cit.

† Broussais says, “les hæmorrhagies spontanée dépendent d’une irritation des capillaires sanguins.”—*Prop. cc.*

‡ There are sufficient grounds to believe, that “a peculiarity of constitution can be transmitted from parent to child,” and may be considered, as a legitimate remote cause, of hæmorrhagy. Besides the cases related by Dr. Otto and others, Dr. Chapman and myself attended a young lady sixteen years old, of delicate habit, for menorrhagia. She had had previously to this attack of hæmorrhage, a long-continued bleeding from the nose, from which she was relieved, after a long time, and much difficulty, by severe dieting and repeated purgings. After the epistaxis was relieved, the catamenia began to show themselves, and continued for nearly a year with considerable regularity, but always pretty free. She, however, during this time, would occasionally throw up blood from the lungs on first waking in the morning, accompanied by a slight cough. About the beginning of October, 1829, her menstrual discharge appeared, and continued without abatement for a month. At this time, I was called upon to prescribe for her. The usual remedies were employed, and the common restrictions were closely adhered to for a fortnight, without benefit. The patient’s strength was rapidly declining, and the hæmorrhage from the uterus as abundant as ever. A variety of other remedies were now tried, which eventually succeeded in stopping the discharge, and the patient recovered her strength rapidly. In this case, purging, very low diet, rest, blood-letting, leeching, blistering, sinapisms, acetate of lead, an emetic, the spirit of turpentine, extract of rhatany, Dover’s powder, nitre and the tampon, were employed in turn. The tampon was the only remedy which gave a check to the bleeding; but immediately after this was arrested, a discharge from the lungs took place, the nitre was continued in fifteen grain doses every two hours for three days; at the end of this time, the uterine discharge ceased, as did that from the lungs. The father of this young lady, and some others of his family, had the hæmorrhagic constitution; and it was transmitted and perpetuated in a certain degree, to their offspring.

capillaries an unusual proportion of blood is accumulated, so that the small ones conveying red blood become large and distended, and those conveying the colourless part are injected with red blood. *Secondly*, After this state has continued for some time, red blood is observed to ooze in minute drops from the surface of the membrane, and progressively to increase in quantity and superficial extent. The cause of this accumulation and consequent exudation is not known. To assert as Bichat has done, that a change in the organic sensibility of the exhalants opens a passage through them to red unchanged blood, is to describe the fact in a different mode, without explaining the reason. The hæmorrhagic effort of Stahl and the *error loci* of Boerhaave, are equally true and not less intelligible.”—*Craigie, Elem. of Gen. Path. Anat. p. 209.*

Treatment of Hæmorrhagy.

3264. Dr. Cullen says, “in entering upon this subject, the first question which presents itself is, whether the cure of hæmorrhagies ought to be attempted by art, or if they should be left to the conduct of nature?” “This latter opinion,” he continues, “was the favourite doctrine of the celebrated Dr. Stahl and his followers.” Upon a due consideration of the subject, Dr. Cullen very properly concludes, “that hæmorrhagy, either upon its first attack, or upon its first recurrence, is never necessary to the health of the body, excepting upon the supposition that the plethoric state which seems to require the evacuation, cannot be otherwise prevented or removed; and as I imagine it possible by other means to prevent or remove a plethoric state, so I do not think that hæmorrhagy is, in all cases, necessary. In general I am of opinion that hæmorrhagy is to be avoided.”

3265. 1. “Because it does not always happen in parts where it is safe.”

3266. 2. “Because often, while it does relieve a plethoric state, it may at the same time induce a dangerous disease.”

3267. 3. “Because it may often go to excess, and either endanger life or induce a dangerous infirmity.”

3268. “And lastly, because it has a tendency to increase the plethoric state it was meant to relieve; to occasion its own recurrence, and thereby induce a habit which, if left to the precarious and unequal operation of nature, may, from the frequent errors of this, be attended with much danger. It is further to be considered, that hæmorrhagies do not always arise from the necessities of the system, but often proceed from incidental causes. It appears to me that all hæmorrhagies of this kind may be immediately suppressed.” “*I conclude, that every preternatural*

hæmorrhagy, or in other words, every one except that of the menses of females, is to be avoided."

3269. This last opinion is, however, to be received with considerable caution, in certain habitual discharges of blood, as hæmorrhoids, and epistaxis when it has been of long standing, and especially when preceded by head-ache or other inconvenience. The same may be said of the occasional return of the catamenia, after they have ceased to appear as a regular elimination in women disposed to cancerous and some other affections of the uterus.

3270. In the treatment of hæmorrhagy, the pulse is to be constantly consulted, as upon its condition important decisions are to be made, as to the nature of the remedies to be employed; we shall therefore consider the principal indications to be fulfilled in the attempt to prevent the return of this disease. The most important necessarily are, the prevention, and the removal of plethora. This is to be effected by—1. Diet. 2. Bleeding. 3. Purgings. 4. Avoiding the remote causes.

1. Diet.

3271. It must be evident, that attention to the ingesta is absolutely necessary, if we mean to diminish the plethoric condition of the system. This end is to be answered, first, by the nature of the aliment; second, the quantity.

3272. The nature of the aliment may be either animal or vegetable. Of the first, none should be taken, so long as a hæmorrhagic disposition of the system displays itself. To the second, the patient should be absolutely confined. As regards quantity, it will be necessary to observe the effects of that which is ordinarily taken; and if this produce too much fulness, the quantity must be abated, or a less succulent kind substituted. Nothing but water should be drank.

2. Bleeding.

3273. This, as an habitual remedy, should be used with great caution, lest it unnecessarily debilitate, or produce a disposition to plethora. The pulse should therefore be the guide; and if the tendency to make too much blood cannot be conquered by a strict attention to regimen, it must occasionally be employed. This sometimes becomes particularly important in such cases as assume, to a greater or lesser extent, a periodical movement, preceded by signs, that announce the discharge about to take place. Here the loss of a few ounces of blood may interrupt the renewal of the hæmorrhage. But let it be remembered in em-

ploying this remedy, that an excessive quantity should never be taken—indeed no more than will lower in a moderate degree the force of the pulse. For when this is effected, even in a moderate degree, it often proves successful in preventing a renewal of the discharge, as it requires a certain force of arterial action to produce hæmorrhagy; therefore, if the pulse be lowered, even in a moderate degree, it may prevent the discharge from taking place, as certainly as if a larger quantity were drawn; for hæmorrhagy depends less upon the *absolute quantity of blood*, than upon the *vigour or peculiarity of the circulation*.

3. *Purging.*

3274. This is a very efficient means, if properly pursued, in preventing hæmorrhagy, especially bleeding from the nose. The influence of this operation upon determinations of blood to the head, has always been acknowledged; and it is every way proper that we take advantage of this fact in the treatment of this disease. By recommending, however, this mode of depletion, we must not be misunderstood; an excess is not meant—by purging in this instance, we only mean regular, but never very frequent discharges from the bowels. Three evacuations per diem, are every way sufficient, provided they are loose or watery. To secure these qualities, a proper choice of the purgative must be made, as all have not this desirable effect. Any of the neutral salts answer the purpose claimed, admirably, when they sit well upon the stomach; and this they usually do. We are in the habit of having four ounces of the sulphate of magnesia dissolved in a pound and an half of water—a wine-glassful of this is ordered every morning to an adult, and half this quantity to younger subjects; if it operate too much, we cause the quantity to be diminished; if it do not act sufficiently, the dose must be increased. Cream of tartar and jalap are also very certain and very kind in their operation, and may be given in fifteen grain doses of each, every third day, mixed in a little thin syrup; the dose to be increased or diminished as circumstances may require.

4. *Avoiding the Remote Causes.*

3275. The importance of this rule is self-evident, and is never to be lost sight of in the treatment of hæmorrhagy, when it is practicable to comply with the injunction. It will almost necessarily be in the power of every individual, however, to shun some of those enumerated above, (par. 3262,) and as many as can be avoided, should be.

3276. In the treatment of hæmorrhagy, it is of great conse-

quence to equalize the circulation as much as possible; and for this purpose there is nothing so good as well-conducted exercise. Of the several exercises within our choice, that of walking is certainly the best—it gives equal employment to all the muscles of the body, and by this means determines an equal distribution of the blood. It should not, however, be carried to excess—for we must insist that exercise is medicine, and should be used with caution and discretion; for over-exertion is even more injurious than a deficiency of it. It should be so calculated as to diffuse the blood with regularity, to dispose the skin to become soft, but never to hurry the respiration beyond a pleasurable degree.

3277. As there is a considerable tendency in all hæmorrhagies for the circulation to be unequal, and especially in the lower extremities, much care should be taken to guard against cold feet and legs—to prevent or overcome this, all cold and damp to the feet should be avoided as much as possible; and if the feet are habitually cold, or become so on slight occasions, the mustard bath should be resorted to, two or three times a week.* Flannel next the skin is also an important application.

3278. We shall detail the treatment necessary during the continuance of the bleeding, under the heads of the respective hæmorrhagies.

SECT. I.—EPISTAXIS, OR BLEEDING FROM THE NOSE.

3279. The exposed situation of the vessels of the membrane which lines the nostrils, renders them very liable to hæmorrhagy; since they have nothing to support the external surface, of an extremely delicate membrane.

3280. This hæmorrhagy is most frequent in the early part of life, as sanguineous determination is most vigorous at this time; it may however take place at a later period, though it is not so common. In boys and girls, the time of puberty is the most common; it is however observed occasionally, both sooner and later; it rarely happens in advanced life.

3281. The blood generally issues from but one nostril at a time, though we have now and then seen it flow abundantly from both, when the hæmorrhage has been of the spontaneous kind, or when produced by external violence. It may take place in persons of every temperament and constitution; but it is most common to the sanguine, and those disposed to plethora.

* A gallon of warm water, and two or three table-spoonfuls of the flour of mustard, form the mustard bath. It is to be used the last moment before going to bed. The feet and legs should be rubbed in the bath until they glow, and wiped dry before getting into bed.

3282. This discharge is almost always announced, by a sense of fulness, or heaviness in the forehead, head-ache, redness of the eyes, flushing, beating of the carotids, and temporal arteries, and an uneasy sensation or itching in the nostril; costiveness, cold feet, and a sensation of chilliness. The quantity discharged does not always correspond with the excitement of the system; especially, where the hæmorrhagy has been often repeated; for under these circumstances, the part concerned becomes liable to partial accumulation or congestion, and will readily yield its blood, without perhaps any general febrile movement.

3283. In some instances of epistaxis, the system at large, or portions of it, as the head, seem very much more relieved of uneasy sensations by the loss of comparatively a small quantity of blood, than if a much larger quantity were drawn from the arm; and this has given rise to a comparison very much in favour of the spontaneous efforts of the system to relieve itself, over the means resorted to by art. This fact is not to be disputed; but it does not prove what is intended to be proved; for in the instances in which this relief is afforded, there is always a partial engorgement, giving rise to these unpleasant feelings; consequently, in such cases the affection is always local in the first instance, but with which the system at large will soon sympathize, provided the irritation be considerable or sufficiently long continued. It would therefore follow, that relief is experienced as soon as the local disturbance is removed—the same thing happens in many other cases, from the partial discharge of blood, as from the application of leeches, or cupping-glasses; and which proves that the removal of the congestion is often all that is necessary towards relief; and that the spontaneous effusion from the nose, or the abstraction of blood from other parts of the body similarly circumstanced, by leeches or cups, amount to the same thing.

3284. This fact however shows us, that it may be proper where the circumstance just named obtains, namely, congestion, that it may be proper to permit a sufficient quantity of blood to discharge itself, before an attempt is made to arrest it—we say a sufficient quantity; by this we mean, a quantity that will relieve the intensity of immediate suffering, or that removes it altogether; for however we may agree in the propriety of preventing a return of the bleeding by the means already suggested, (par. 3271 to 3276,) we are nevertheless impressed with the necessity of alleviating the immediate symptoms. Therefore, in plethoric and robust constitutions, and particularly in such as have habitual determinations to the head, too much anxiety should not be shown on account of the continuance of the bleeding, unless it persevere beyond the absolute necessity.

3285. But if this happen, or the returns are more frequent

than the apparent exigency demands; or if the patient become pale, feeble, and emaciated, the hæmorrhage should not only be stopped, but every endeavour should be exercised, to prevent subsequent returns; to moderate their force; or to abridge their frequency.

3286. If the first of these conditions obtain, namely, a greater expenditure of blood than the immediate necessity demands, and this even in a full habit, the bleeding should be stopped as soon as possible after this quantity has flowed; or if the returns are too frequent, or if the patient become weak, it should be arrested without loss of time.

3287. For these purposes, the patient should, 1st, be placed in as cool a situation as can be commanded in hot weather, or as the season of the year may demand; 2d, he should be kept in an erect position;* 3d, cold applications should be made to the back of the neck,† by ice and water, or very cold water, confined in a bladder, to prevent unnecessary wetting; 4th, by plugging the nostril or nostrils,‡ if the other plan does not succeed; 5th, by blood-letting, if arterial excitement keep up after the removal of head-ache, or other inconvenience; 6th, in case all these fail, the acetate of lead, in doses of two or three grains with a quarter of a grain of opium, every two or three hours should be tried. The spirit of turpentine has also been found useful in twenty-drop doses, every hour or two, in a little sweetened water; and the following "*styptic*" is recommended by Dr. Thatcher:—

R. Sulph. cupri	- -	gr. iij.	Take Blue vitriol	- -	3 grains.
Acid. sulph.	- -	gut. xx.	Oil of vitriol	- -	20 drops.
Aq. font.	- -	3ij.	Water	- -	2 ounces.
f. sol.			Dissolve.		

Of this from twenty to forty drops are to be taken in a little water, every hour during the continuance of the bleeding.

* We would advise strict attention to be paid to this direction, as its influence upon the bleeding is very decided.

† It has been common to recommend cold applications to the *scrotum* of males; the principle on which this is directed, we do not understand, if it be other than the great sensibility of this part, and its susceptibility to impression from cold. We cannot suppose, or rather we do not know of any well-established fact to prove a peculiar sympathy between the scrotum and the internal lining of the nose—we are therefore of opinion, that all influence derived from such applications to this spot, must be owing altogether to the strong impression their coldness make upon it.

‡ A piece of fine old linen rag, rolled tight into a cylindrical form, and of a size sufficient to occupy the nostril, should be gradually twisted up it, until it reach the bleeding vessel. The portion of the plug without the nostril should be cut pretty close to the nose, to prevent any mechanical disturbance of it—it should be suffered to remain, at least six-and-thirty hours before it be removed. Some have recommended, that the plug should be wetted with some astringent or styptic substance, before it is introduced; but we believe the dry rag answers much the best.

3288. Where the bleeding has been frequently repeated, and is very pertinacious, the blood becomes thin and watery; here the quinine, and the sulphuric acid are necessary, it is said. Of the utility of this plan we can say very little; as in the two or three cases in which we have given them a trial, they failed. We have found the extract of rhatany, blisters, together with purging with aloetic preparations, to answer much better. Of the first, about twenty or thirty grains a day should be given in pills of three or four grains each. The blisters should be applied to the neck; and alternated with the arms, just below the top of the shoulders; and the pills recommended, (par. 293,) will answer a valuable purpose as cathartics. Care should be taken to keep the feet and legs warm; to use well-directed exercise; to sleep with the head high, and without covering; and to have nothing tight round the neck. Of the treatment in the intervals we have already spoken, (par. 3264 to 3277.)

SECT. II.—HÆMOPTYSIS, OR BLEEDING FROM THE LUNGS.

3289. There is no circumstance connected with disease that produces so many melancholy forebodings as “spitting of blood;” all that is desponding is instantly associated with its appearance; and all that is hopeless is connected with its perseverance. That there is too much ground for apprehension in many instances, we freely admit; while in many others, there is nothing to alarm.

3290. The cultivation of morbid anatomy has thrown much light upon these several cases; and well-conducted pathological research has distinctly pointed out the cause of its danger on the one hand, and the exemption from it on the other. Even to the time of Dr. Cullen, and indeed until very lately, phthisis pulmonalis was supposed to be the offspring of hæmoptysis; and it was not known till after Bayle, Laennec, Andral, Louis, &c. had given their attention to the investigations of this subject, that this affection was found to be the consequence, rather than the cause of tubercles, or of consumption.

3291. Therefore, however alarming or even suspicious the discharge of blood from the lungs may be, it is never to be considered as the *cause of phthisis*; for it may be either the sign of tubercles, or it may be as little threatening, as epistaxis, or bleeding from the nose; for like this, it may proceed from congestion or local determination, which becomes, for the time at least, relieved by the effusion of a smaller or a larger quantity of blood.

3292. Hæmoptysis, by its mere derivation, would import any affection in which blood was delivered from the mouth; but in

its restricted sense, it comprehends only such discharges as proceed from the trachea or bronchial vessels.

3293. Next to epistaxis, hæmoptysis is the most common of the hæmorrhagies; this proceeds most probably from the similarity of conformation of the parts that yield the blood in both instances—that is, from their great vascularity and from the want of a protecting pressure upon every part of the vessels entering into the composition of the respective portions of the mucous membrane of the nose, the trachea and the bronchia; (par. 3279,) and also, perhaps, as suggested by Dr. Cullen, the proximity of the lungs to the heart.

Causes.

3294. Hæmoptysis may take place from external violence, mechanical irritation, or from internal causes, either of determination or peculiarity of conformation. Thus, we have known spitting of blood to follow immediately after blows, or falls, or other violence; we have known it produced by irritating substances being drawn into the lungs—once from a portion of the down from the “cat-tail” being drawn into the lungs—this produced the most violent hæmorrhage from the lungs we ever remember to have witnessed; and once we saw it follow the breathing of the nitrous oxyd gas. The internal causes may be an hereditary transmission of disposition to phthisis; and Dr. Cullen thinks this always implies “a peculiar and faulty conformation.” We do not however altogether believe, that hereditary predisposition consists in a faulty conformation, though it may in a *peculiar conformation*, as this may be made to mean any thing.

3295. But we think it may be said with truth, that when hæmoptysis arises from hereditary predisposition, it never takes place until after the development of tubercles within the lungs. And it may be further observed, that in such cases, this affection may be anticipated from some physical imperfection of the chest, such as its narrowness, and the elevation of the shoulders. The liability to this disease is increased, if this conformation belongs to one of a sanguine temperament, and consequently in one where the arterial plethora prevails. In a word, we may declare that all who may have the physical marks of phthisis, are more or less obnoxious to hæmoptysis.

3296. It usually commences at that period of life at which the body is about to receive its full development; though it may, and frequently does occur later, even until the fortieth year; after this period, it is more rare. And such as may have been subject to epistaxis in the earlier part of life, are also very liable

to this species of hæmorrhagy; or females who may have suffered a suppression of the catamenia; as also males who may have had an exemption, from some sudden cause, from the bleeding piles.

3297. When hæmoptysis proceeds from tubercles, its frequency and quantity will very much depend upon the number, the rapidity, or slowness of their development—hence, we see this discharge returning at intervals, for years, without any evident increase of quantity, or any manifest augmentation of danger; at other times, this symptom is only the forerunner of death.

3298. When it has not a phthisical origin, it may occur frequently, for years, without manifest injury, and the subject may even die at an advanced age—of this we have known several remarkable instances. This observation is confirmed by several of the late French pathologists. But on the other hand many die of tubercular consumption, who never had hæmoptysis.

3299. Certain professions are supposed to create a liability to hæmoptysis; in some of these instances we believe the exciting cause has been mistaken for the predisposing—such as public speakers, for instance. How few of these *cause* hæmoptysis by their exertions, compared with those who may *provoke* it, after predisposition is formed. So also with those who play upon wind instruments—of this class, (and we have been many years very familiar with it,) we have never known a single instance of hæmoptysis being produced exclusively by professional exertions. Such men doubtless, as well as any other men, be their avocations what they may, will occasionally die of consumption; but *post hoc, ergo propter hoc*, is not always sound logic. Indeed, we are of opinion, that the lungs may be strengthened by a well-directed exercise of them, as certainly and as advantageously as any other portion of the system—nay, even predisposition we believe may be subdued by it.

3300. The late Dr. Rush, in his lectures, used to inform us, that both in Germany and in Holland, consumption was comparatively a rare disease; and he attributed this exemption to the early and free use made of the lungs in these countries, as all the children were taught to sing while very young. And in his little tract on “the efficacy of common salt in the cure of hæmoptysis,”* he says, “those persons who have been early instructed in vocal music, and who use their vocal organs moderately through life, are seldom affected by an hæmorrhage from the lungs. Lawyers, players, public criers, and city watchmen, all of whom exercise their lungs either by long or loud speaking, are less affected

* Works, Vol. I. p. 192.

by this disease than persons of other occupations." Now all this is in strict unison with our own observations.

Phenomena.

3301. This disease attacks variously, sometimes without the slightest premonition; when this happens, we have generally observed the most extensive discharges to follow. This happened in our own case. In 1783, we suffered the most profuse and alarming hæmorrhage from the lungs we almost ever witnessed; we had not the slightest warning, by either a preceding cough, or other inconvenience; and we were for several years liable to returns of it, without our ever being able to foretel it was about to take place. But in general, this disease is ushered in by a slight cough, and the bringing up of a little mucus, tinged with blood; or it may even for the first time be pure blood; and this in varying quantity. At other times there may be both local and general symptoms, which announces this discharge to be about to take place; such as uneasiness, lightness, or pain in some one portion of the chest; for there is no fixed spot for either pain, heat, stricture, or other uneasy sensations. There may be, however, some little want of freedom in breathing, with an occasional urgent desire to expand the lungs.

3302. A dry cough, or a very scanty expectoration of frothy mucus; a disagreeable sweetish or saltish taste in the mouth; lassitude, flushed face, or pale cheeks; head-ache, chilliness, fever; pulse quick, hard, and sometimes very frequent. A rattling may sometimes be heard in the thorax, especially if the quantity of blood effused be small; for it will then become mixed with air and give the sound just named.

3303. When the blood is thus confined within the bronchia, it very often excites coughing, and more or less is brought up into the fauces, and from thence discharged by spitting. This blood is almost always of a bright arterial colour, and its quantity may vary from a few streaks up to several pounds. This may happen in a few minutes, or it may occupy several hours, nay days. The blood will sometimes be very dark, and come up with more or less difficulty, in small coagula, especially when the hæmorrhagic effort is about to cease.

3304. The periods of return of this hæmorrhagy is very variable; the intervals generally are longer in such cases as are not complicated by tubercles; but this may be much influenced by the habits of the patient, or the less or greater frequency of the application of the remote causes. The liability to returns of this complaint will therefore be very much influenced by the nature and operation of these causes.

3305. As it is impossible in many instances of hæmoptysis to determine its remote cause, it would be always best to explore the chest by the stethoscope; this would render our therapeutical views more distinct and certain, especially as tubercles may be looked upon as the most frequent cause of this complaint. And on the other hand, we may have it in our power by this means, to relieve in some instances, a depressing apprehension, where this discharge takes place from other causes than tubercles, and at the same time remove a dread of its eventual bad tendency, as we have no evidence that the spitting of blood ever produces tubercles. "It is worthy of remark," says Laennec, "that a hæmoptysis produced by violence, as a blow upon the chest, violent running, a fit of passion, immoderate exercise of the voice, &c. is most commonly productive of no further consequences when it is once got under; whilst phthisis frequently supervenes immediately to a hæmorrhage arising without any obvious cause, but which no doubt has for its real cause, tubercles which had previously, and perhaps for a long time been latent in the lungs." p. 327. Louis strongly supports Laennec in this opinion, (see note to par. 1755.) Andral says, "of persons who have had hæmoptysis, one-fifth part have no tubercles in the lungs; and of those who die of phthisis, one-sixth do not spit blood at any period of the disease."*

3306. It is therefore a matter of great consolation, that other causes than tubercles may produce hæmoptysis, and that when it does arise from other causes but little danger attends it in common. Thus, whatever is capable of irritating the mucous membrane of the bronchia, to a certain extent may occasion a discharge of blood from the lungs. Hence, we find it sometimes attending bronchitis or severe catarrh; to follow from sudden changes of temperature, as from a very cold, to a hot atmosphere, &c.

Proximate Cause.

3307. The proximate cause of hæmoptysis has generally been ascribed to a rupture of one or more blood-vessels, and this by mechanical violence—such as a change in barometrical pressure; sudden and severe exertions, as lifting heavy weights, carrying heavy loads, &c. (par. 3262.) In these instances, it is supposed by Cullen, Good, and others, that an increased action of the heart causes an unusual determination of blood to the lungs, and thus ruptures the vessels by over-stretching them. But this opinion, however naturally it may suggest itself, from violence having immediately

preceded the discharge of blood, does not appear to be well-founded; upon this we have already had occasion to remark, (par. 3261,) and what we have there said, will give the opinion of Chomel, and we believe of nearly all the present French pathologists; we therefore without hesitation adopt this explanation.

3308. It has been said by some, that the explanation of the manner in which the blood issues from the vessels, is not satisfactory; as the quantity discharged is very much too great to proceed from the vessels in the manner described. To this objection, Dr. Condie says, "let any one cite to us a case of the most excessive hæmorrhage, and we can present to him one of simple expectoration or flux of mucus, in which the amount of fluid discharged shall exceed the quantity of blood poured out in the former." "It is now satisfactorily ascertained that the vessels of a part, when labouring under irritation, have the power of exhaling blood, in the same manner they do serum, or other fluids, and probably to as great an extent."*

3309. It may perhaps be objected, that Dr. C. has taken the product of the whole pulmonary surface to compare with the yield of a single blood-vessel, in the same given time, which would not be fair; for if a comparison be instituted, regard should be had to the extent of surface occupied in giving out blood, as well as that which pours out serum or mucus; the latter of which would be found perhaps infinitely less than that of the former, and of course, the torrent which sometimes pours from the mouth in hæmoptysis, can therefore only be accounted for, on the supposition that a vessel has been ruptured; and if we add to this the suddenness with which the bleeding takes place, the opinion seems to be strengthened.

3310. This would appear to be a reasonable objection at first sight, but if narrowly examined, it will be found to be more specious than solid. First, because the ruptured vessel or vessels have never been detected; second, because it is ascertained that the blood-vessels when under certain irritations, will exhale blood instead of serum or mucus, (par. 3261;) third, because we have seen the whole surface of the mouth and fauces yield blood as fast as it could be removed; and this to a large amount in the twenty-four hours, without the slightest discoverable lesion. And Mr. Paisley relates a case of death from protracted labour, where the death of the patient could not be accounted for, as there was no apparent hæmorrhagy; leave was obtained to open the body, and upon exposing the uterus, it was found covered with a coagulum of blood, which upon measurement was found to be "a foot and a quarter long, a foot broad, and a quarter of

* North Am. Med. and Surg. Journ. Vol. V. p. 29.

an inch thick." There was no blood in the cavity of the abdomen, nor could the slightest lesion of the surface of the uterus be detected.* Fourth, because congestive irritation can cause very rapid determinations to either the lungs, brain, liver, spleen, &c. and this to a very great extent. We knew in the course of a few minutes, a very extensive engorgement of the spleen to take place in a lady; her left side became swollen and very suddenly tender; upon examination, the spleen was found to be excessively enlarged; so much so, as to appear to rest in the fossa of the ilium. The patient quickly became pale and faint; respiration was hurried, and the pulse very small and frequent; these latter symptoms were accounted for, by referring to the large abstraction of blood from the general system, by this one viscus. In the lungs, hepatization or hæmorrhage may take place, when they become the seat of congestive irritation, and the extent of this will be determined by the degree of irritation; it may therefore be very partial, or it may be very extensive. Fifth, the *modus operandi* of certain remedies cannot be explained upon the presumption that a rupture of vessels is essential in all cases of hæmoptysis; such as swallowing common salt, taking the acetate of lead, &c.

3311. Notwithstanding our objections to the proximate cause of hæmoptysis, as commonly delivered, we would not deny absolutely the occasional rupture of a vessel; especially as Laennec admits two possible cases of this kind; the first, is where an aneurism bursts into the bronchia or trachea; the second, when a tuberculous excavation has a vessel to rupture within it. These cases however, he observes, are almost immediately followed by death, and consequently cannot explain the phenomena of hæmoptysis, as this occurs so frequently.

Treatment.

3312. The treatment of hæmoptysis will necessarily divide itself into what is necessary to be done during the discharge of blood; and into what may be proper to prevent a return of it.

Treatment during the Flow of Blood.

3313. The directions already given for the treatment of epistaxis, will apply here to a certain extent. As a general rule in the treatment of hæmorrhagies, position is always to be considered of consequence—that is, the patient should be placed in such a manner, as to lessen the determination of the blood to the bleeding part, by opposing to it, gravitation. In bleedings from

the lungs therefore, the patient should be kept sitting erect, both day and night, if the discharge be considerable or obstinate—for this purpose a large “easy chair” is a proper thing; as the body may rest in it without changing from an upright position. The legs and feet can be occasionally supported by chairs, on which pillows are placed; and when tired of this position, they can be put down.

3314. The air of the chamber should be cool, and frequently changed by ventilation. The patient should be forbidden to speak; a slate, or paper and pencil may be furnished to him, to prevent this exertion. Every thing tending to increase the motion of the blood should be strictly avoided; therefore, both moral and physical agitation must be carefully guarded against. All embarrassments to respiration should be removed; even the weight of the covering should be diminished and no more suffered to remain than will barely secure a very moderate degree of warmth. All unnecessary attendants should be dismissed the room; and the most perfect quiet must be observed.

3315. If the discharge be recent, the patient should be made to swallow a tea-spoonful of fine salt, as directed by Dr. Rush, drinking after it a large glass of cold water; if the pulse be active, blood should be taken from the arm, observing to abstract it as suddenly as possible, be the necessary quantity much or little, in order to make as much impression on the arterial system as possible.

3316. Whatever may have been the remote cause of hæmoptysis, if it be frequently repeated, though it be in a moderate degree, it is very common for it to observe a periodical movement—and this is remarkably the case, when it proceeds from tubercles, and these suppurating. When this is about to take place, it is frequently preceded by sensations that declare it to be at hand; such as flushing of the face; hot hands; cold feet; a sense of tightness or fulness in the chest; an increase of cough, with expectoration tinged with blood. If this warning take place, it behooves the patient not to neglect the friendly admonition, lest he suffer by his neglect—he should immediately lose a little blood, have his bowels opened by either of the neutral salts, moderate his diet, or even take nothing but barley water; observe the most perfect quiet, and should the cough require appeasing, to take a moderate dose of Dover’s powder, (ten grains,) at bed-time. The patient had better sleep in a sitting posture, (par. 3313,) in a cool room; and if his feet be cold, to have them placed in the mustard bath,* and suffered to remain in it until they glow.

* That is, warm water with a quantity of the flour of mustard mixed in it. (See note to par. 3277.)

3317. The same directions will serve for the treatment of hæmoptysis, that is frequent or more seldom in its returns. For after the hæmorrhage has taken place in any quantity, the object is to arrest it; and the nature of the remedies will necessarily depend upon the state of the system, as has already been suggested. But these precautionary measures should be confined to the instances in which the patients experience the premonitory symptoms named above; for when bleeding is resorted to, and the other measures put in practice, where there is no evidence of plethora or of hæmorrhagic effort, it is sure to do mischief by perpetuating weakness, and preventing the full exercise of the recuperative powers of the system. At least this was markedly the case in the hæmoptysis which pursued us for several years, with more or less violence. For it was not until we used exercise freely, but carefully; and resumed the use of animal food; together with learning to play the flute, that this hæmorrhage ceased.

3318. It would therefore always be desirable to discriminate between the hæmoptysis that may be accidentally produced, and the one which may arise from tubercles—for this purpose the stethoscope should always be employed.

3319. Cases not unfrequently occur, in which it is every way desirable to diminish the capillary congestion, without drawing blood from the general system, especially in such cases as obey a periodical movement, accompanied by premonitory symptoms; or in such cases as may have the hæmorrhage provoked by a slight increase of arterial action. For this purpose, “dry cupping” between the shoulders answers extremely well; but if fever attend, with evening exacerbations, the “wet cupping” may be resorted to—these operations should be conducted as recommended in Chapter on Rheumatism.

Cathartics.

3320. Of these we have already spoken, (par. 3274, page 712.) In addition to what we have said there, we shall merely suggest, that much advantage is derived from the use of the aloetic purgatives, in men who may have been liable to hæmorrhoids, and to females about the cessation of the menses.

Diuretics.

3321. Diuretics have been recommended in the treatment of hæmoptysis; of their operation we can say nothing from our own experience, unless nitre and digitalis be considered as such in this case, neither of which have we tried to any extent.

Emetics.

3322. We believe that Dr. Bryan Robinson was the first to recommend emetics in active hæmorrhage. We have never tried them ourselves in hæmoptysis—Dr. Chapman speaks highly of them.* We once saw the most astonishing effect from an emetic, in a case of bleeding from the gums, (par. 3310,) attended by Dr. Chapman and myself. This hæmorrhage occurred during convalescence from a severe remittent fever, which had been converted into an intermittent. The patient supposed he lost a quart or more during the night; and he certainly lost an equal quantity in the next twenty-four hours, though all the usual remedies were tried in turn. Dr. C. proposed an emetic; it was given; and it really acted like a charm—the bleeding stopped instantly. About four days after it had stopped, it returned, but not with as much force; another emetic was given, and the same sudden and more effectual result followed. Dr. Chapman recommends the ipecacuanha as the preferable emetic.

Blisters.

3323. Blisters applied to the chest, or where we think better, between the shoulders, should never be omitted in the treatment of hæmoptysis, after the more active stage of the disease has passed.

Partial Warm Bath.

3324. The French practitioners recommend the partial application of hot water, to which the flour of mustard or common salt has been added. The hands and feet are directed to be placed in it, with a view of producing a revulsion from the lungs—but this is never to be used unless the bleeding continue after the period in which the lancet or other antiphlogistic means are thought to be necessary.

Cough.

3325. Hæmoptysis is almost constantly accompanied by cough—this troublesome symptom should be quieted as quickly and as effectually as possible. For this purpose, the employment of opium in some form or other is absolutely necessary. Almost every practitioner has his favourite prescription; we therefore

* Amer. Journ. of Med. Sciences, Vol. II. p. 120.

shall say very little as regards the various forms in which this drug is administered, and merely indicate what we have generally used and found useful in quieting this distressing attendant. When the complaint is of long standing, and has become chronic, we have found the following combination answer an admirable purpose.

R.	Tinct. Tolut.	-	-	3j.		Take Tincture of Tolu	1 ounce.
	— Thebaic.	-	-	3ij.		Laudanum	2 drachms.
	— Digital.	-	-	3j.		Tincture of Foxglove	1 drachm.
	M.					Mix.	

Of this forty or fifty drops may be taken every three or four hours, on a little dry brown sugar, or mixed in a little sweetened milk, and increase as occasion may require.

3326. When, however, the hæmorrhage is more recent, we have found the spermaceti mixture to answer admirable; or should this be offensive to the stomach, the brown mixture will be found an excellent substitute. See par. 1310, page 393. We have lately used the following mixture with great advantage, where opium was apt to disagree, and where the skin was dry and husky.

R.	Morphia	-	-	-	gr. ij.		Take Morphia	-	-	2 grains.
	Vin. ipecac.	-	-	-	3ij.		Ipecac. wine	-	-	3 drachms.
	Sacch. alb.	-	-	-	3ij.		White sugar	-	-	2 drachms.
	Aq. font.	-	-	-	3viij.		Water	-	-	8 ounces.
	M.						Mix.			

Of this a table-spoonful may be taken every three or four hours, or as occasion may require.

Diet.

3327. Of this, we have already spoken in the general, (par. 3271.) We would, however, in all cases of hæmoptysis, except the accidental, confine the patient to a very moderate quantity of even vegetable substances, during the more active stages of the disease. The vegetable jellies, as rice, tapioca, sago, arrow root, rennet whey, buttermilk, well-mashed Irish potatoes, turnips, and the fruits of the season, should form the basis of his diet. Pure water, toast water, flaxseed, or slippery-elm bark tea, rice water, molasses and water, with either a little lemon juice or vinegar, or lemonade, should constitute his drinks.

SECT. III.—HÆMATEMESIS, OR VOMITING OF BLOOD.

3328. This form of hæmorrhage is very much more rare than either of those just treated of. Pinel* defines hæmatemesis to

* Dict. des Science Méd. Art. Hæmatemesis.

be "a vomiting of blood, more or less red, sometimes black, fluid, or coagulated, almost always mixed with mucus or other substances contained in the stomach, and sometimes accompanied with dejections of blood, of various colours."

3329. We have already declared that we are far from having ascertained the precise condition of the parts that yield the blood in spontaneous hæmorrhagy; nor is our embarrassment lessened in studying their pathological state, when a discharge of blood takes place from the stomach; for the same explanation is generally given in this case as is offered in epistaxis or in hæmoptysis—namely, a rupture of a vessel. We have attempted to show that this is not the true state of the parts concerned in the two other hæmorrhagies, and its probability is not increased when we consider the phenomena of hæmatemesis; the presumption, however, is, that the exhalants pour out the blood that is discharged in this species of hæmorrhage, after the manner they do in bleeding from the nose and in spitting of blood. For we must admit as every way probable, that the congestive irritation may be as certainly seated in the stomach, as it appears known to be the case in the brain, lungs, or other of the viscera.

3330. One thing seems to be very certain, that it does not always proceed from the same cause, nor is it always followed by the same consequences. On this account it has been divided into five species by Pinel,* as follows:—1. The constitutional hæmatemesis.—2. The accidental hæmatemesis.—3. The succedaneous, or vicarious hæmatemesis.—4. The splanchnic hæmatemesis.—5. The critical hæmatemesis.

1. *The Constitutional Hæmatemesis.*

3331. By this is understood a discharge of blood from the stomach arising from an inherent badness of constitution, and not dependent upon any appreciable or cognizable cause. This species may have its origin in a radical weakness of organization, in an excess of organic strength, in plethora, or in too much energy in the arterial system. Pinel cites from several authorities, examples proving the agency of the several enumerated causes, in all of which every attempt at relief was abortive or followed by bad consequences—this species, therefore, cannot advantageously be interfered with.

2. *The Accidental Hæmatemesis.*

3332. This species is by much the most frequent of the five just enumerated; as it may have for its production a variety of

* Loc. Cit.

exciting causes, as a fit of anger, the sudden suppression of the menses, &c. A case is given by Pinel, from Gerard, to prove the agency of these causes. A washerwoman, aged thirty-five years, fell senseless twice from a fit of passion, while the menses were flowing; they were suddenly suppressed; after two or three days of pretty severe indisposition, a vomiting of blood took place, together with bloody dejections. The other instance occurred in a young woman who was about to make a desirable connexion, but who received some account suddenly, that put an end to her wishes; she was menstruating; the menses were suspended; a vomiting of blood followed, which continued five or six days, and then ceased without any serious consequence following.

3333. Mechanical causes may also produce vomiting of blood; as may acrid or irritating substances taken within the stomach itself. We once witnessed this affection produced by a severe kick of a horse upon the epigastric region; and another in a woman of the town who had taken both arsenic and laudanum, for the purpose of destroying herself, which was very speedily effected.

3. *The Succedaneous Hæmatemesis.*

3334. This name is given to the vomiting of blood which succeeds the suppression of a sanguineous discharge. This species observes the same progress, and returns at the same periods. It is not unfrequently vicarious to menstruation, but more rarely to hæmorrhoids. Several interesting cases are recorded, purporting to establish this exchange of office; but our limits will not permit us to quote them. Our own experience has never furnished us with an example of this kind.

4. *The Splanchnic Hæmatemesis.*

3335. Under this title is comprehended the vomiting of blood, which is caused by an organic lesion of some one of the abdominal viscera, as the spleen, the liver, the pancreas.* In this spe-

* Dr. Chapman and the author have lately had an opportunity to witness a most interesting case, in which the pancreas was entirely scirrhus. Mr. L. aged forty-six years, found his health decline during the last eighteen months. In August, 1831, he complained much of dyspeptic symptoms, and for which I prescribed a suitable regimen and some laxative medicine—he thought himself much improved by the plan laid down, until about the latter end of February, 1832. About this time he was attacked by a vomiting of an enormous quantity of a black matter, resembling, in all its physical properties, that thrown up in the last stage of yellow fever. This throwing up took place about every twenty-four hours, and as soon as it was discharged his feelings

cies the vomiting is symptomatic; it is, however, declared to be both frequent and dangerous, though not a primitive affection, and consequently not strictly perhaps entitled to a place here, yet its danger entitles it to a consideration. A number of cases upon record show most satisfactorily, that lesions of any of the principal abdominal viscera may cause a vomiting of blood, either directly by blood being thrown into the stomach, and then evacuated from it by its own efforts, or indirectly by congestive irritation. For a number of such cases we refer to the work above cited.

5. *The Critical Hæmatemesis.*

3336. This species is produced when nature directs her efforts towards the stomach, to relieve disease elsewhere situated; it is not often observed in acute diseases. In chronic affections, however, we have a number of cases upon record, especially by the older writers, in which hæmatemesis was followed by a return of health, where every circumstance seemed distinctly to declare, either the liver, the spleen, or the pancreas, was the seat of the original affection.*

Proximate Cause.

3337. We must regard hæmatemesis as an hæmorrhagy, differing in nothing from epistaxis or hæmoptysis except in location. The same condition of the exhalants is present in this species as in the hæmorrhagies just mentioned; that is, the mucous membrane has its exhalants to pour out blood instead of mucus.

3338. Post mortem examinations of those who have died of were very much more comfortable. His bowels yielded, a black, tarry, tenacious substance, when they were moved, which was however seldom, though urged by a variety of cathartic medicines. He suffered no very acute pain, though there was tenderness in almost every part of the abdomen upon pressure. He made urine freely; and it was of a healthy appearance. His thirst was very great; his tongue moist, but redder than natural. His pulse, but little quickened, and was sufficiently firm. Singultus supervened, to a very distressing degree. His mind was perfectly composed, and resigned; and he died without much suffering.

Dr. Horner kindly examined the body—the pyloric extremity of the stomach was found to be scirrhus, and bearing marks that it would soon have ulcerated. Its calibre was much contracted; the inner coat of the stomach was softened—its veins were distended with a black fluid every way resembling that thrown up by vomiting, and of which it contained a considerable quantity. The pancreas was scirrhus in every portion of it. The colon was highly inflamed, in very many patches. The rest of the abdominal viscera were free from disease.

The black matter thrown up was an altered venal blood, and as regards quantity very much exceeded the liquids swallowed.

* See Dict. des Science Med. loc. cit.

hæmatemesis, present different appearances; if the disease have been very acute and suddenly fatal, no trace of disease has been observed. At other times, the mucous membrane has been found black; its vessels dilated, but very rarely ruptured. By injecting the trunks of the gastric arteries, M. Portal made the injected matter pass into the stomach itself—in a word, the mucous membrane was more or less inflamed.

3339. In those who died of the splanchnic species, the spleen has been found hard, even cartilaginous, or very soft, and its parenchyma distended with black blood. The liver has presented a variety of appearances, from simple engorgement, to confirmed scirrhus. The pancreas has had, in some rare cases, lesions of a greater or less extent.

Diagnosis.

3340. At first sight, it might appear almost impossible that a vomiting of blood should not instantly be distinguished from hæmoptysis, as an effort to vomit is so conspicuous a symptom. Yet this is not so in every instance; we have known these hæmorrhagies twice confounded, though much pains was taken to ascertain the point in the commencement. Sometimes these two diseases complicate each other, which increases the embarrassment still more. Notwithstanding, therefore, that the action of vomiting is a remarkable and well-defined effort, it is occasionally simulated, when cough is very severe and paroxysmal, as we frequently see in whooping-cough, when the fit is about to cease. Indeed, we have seen a number of instances, where the effort of puking was constantly excited during a long-continued spell of coughing. In these cases, had hæmoptysis been present, it might readily have been mistaken for hæmatemesis. In the former, however, there is almost always cough; the blood is frothy, and vermilion-coloured; in the latter, the blood is black, sometimes fetid, and most commonly mixed with mucus. It generally takes place at a much later period of life than the former, and is at times so unequivocally ejected by an effort of the stomach, or so evidently mixed with some of its contents, as to leave no doubt upon the mind. If, therefore, the discharge on the one hand be preceded by a spell of coughing, we may be pretty certain that the blood comes from the lungs; and the contrary. We must not take for granted, however, that the hæmorrhagy is necessarily from the stomach, because blood or coagula are observed in the stools; for we have seen this happen more than once in unequivocal cases of hæmoptysis.

Prognosis.

3341. Much on this subject may be learnt, from a knowledge of the remote cause; thus, if the patient has swallowed any poisonous substance; if he have received any violent mechanical injury on the abdomen, or the region of the stomach; if it have supervened a chronic visceral disease; if the efforts be severe and indomitable, and attended by large discharges of blood, and this be very fetid, or resembling tar, the case must always be regarded as one of great danger, but not one of absolute hopelessness. If, on the other hand, it has followed a fit of anger, a suppression of some customary evacuation, as the hæmorrhoids, the catamenia, the drying up of an issue, &c., if the body be otherwise sound, it is rarely fatal.

Predisposing and Determining Causes.

3342. It is generally agreed that the peculiar character of the female constitution, make them more obnoxious to this disease than males. Those who are easily put in a passion from slight causes, and frequently display irascibility; or who may be powerfully affected by moral causes, are more liable to hæmatemesis, than those of a contrary temperament. An indolent, luxurious life about the age of puberty; chronic abdominal affections; women who are irregular in their menstrua, a continued use of ardent spirits, &c. all tend to dispose the stomach to take on this hæmorrhagic effort.

3343. The determining causes may be any thing which shall embarrass the circulation of the blood in the vessels of the stomach; the suppression of menses, or other discharges. The sudden application of cold to the body during perspiration, poisons, powerful emetics, or acrid preparations of mercury; falls, blows, pressure upon the stomach, aneurismal tumours, &c.

Symptoms.

3344. Previously to the access of hæmatemesis, the patient experiences not only the premonitory symptoms of hæmorrhagy in general, (p. 706,) but also such as belong to this particular species. Thus, anxiety, lassitude, uneasiness about the region of the stomach, its distention, nausea, and severe pain in the epigastrium—to these succeed others equally distressing, but more decided; for now blood is thrown up in greater or less quantity; fluid, or coagulated; pure, or mixed with some of the contents or products of the stomach. This effort is accomplished

with more or less ease or difficulty; and this succeeded by more or less relief. This calm may however be disturbed by fresh returns of vomiting, and discharges of blood; the intervals may be longer or shorter, according to the force and nature of the exciting cause. After these spells of vomiting, the bowels yield, and give issue to liquid, and insupportably fetid stools.

3345. Fever rarely accompanies this complaint; though the pulse may be decidedly affected, both in its force and frequency; sometimes firm, at other times feeble, sometimes full, at other times small, &c.

3346. The vomiting spells continue to uncertain periods, as the blood may be more or less abundantly thrown into the stomach; and the renewal of each fresh effort is generally accompanied by symptoms which mark the progress of the disease, particularly if the spells are frequently excited, and likely to have an unfortunate termination. The stomach and left hypochondrium becomes distended; the countenance is changed; the face pale; the eyes hollow; the strength fails; fainting; and presently cold sweats and death.

3347. If the disease is disposed to a favourable issue, the whole of the symptoms abate their intensity; the quantity of ejected blood, is found gradually to diminish, and mucus to supply its place. The strength and appetite return, and digestion is soon naturally and healthily performed.

3348. Hæmatemesis may however terminate in some hopeless and distressing chronic affection; such as dropsy, hectic, chronic inflammation, &c.

Treatment.

3349. This will necessarily divide itself into, 1st, what may be proper during the continuance of the vomiting; and 2d, what may be necessary in the intervals.

3350. 1st. It is every way important to the relief of this disease, that we ascertain when practicable, the remote cause which has produced it. If it arise from substances taken into the stomach, their nature should be taken into consideration, that they may, if they are chemical, be decomposed if possible; or the irritation diminished, if they are acrid. These cases must be treated as the various poisons may require.

3351. If it proceed from no evident cause, and the system active, we have reason to fear inflammation, from the almost certain existence of congestive irritation. In this case, blood must be abstracted from the arm, if the force of the pulse justify the measure; if not, from the epigastrium, by leeches or cupping. The bowels should be immediately opened by a stimulating injec-

tion,* and if the feet and legs be cold, they should be placed in the mustard bath, (par. 3277,) or have sinapisms applied to them. The drinks should be of the mucilaginous kind, as flaxseed tea, slippery-elm bark tea, barley water, rice water, gum Arabic water. Dry cupping, blisters, or sinapisms to the region of the stomach may be also necessary; especially if the vomiting be obstinate, and the pulse has become feeble. At this time, much advantage may be found, from an enema with laudanum,† as it will tranquillize the stomach, and abate general suffering. The bleeding must be repeated if the pulse keep strong, or if the complaint be regulated by a periodical febrile movement; or in other words, the paroxysms must be treated upon the same general principles as regulate the treatment of intermittents. Besides these general notions of the management of this case, attention should be paid to the species of this complaint, as constant reference should be made to the cause—thus we would not treat the constitutional hæmatemesis, like the accidental, &c. Dr. Chapman is equally convinced of the propriety of giving an emetic in this disease, as in the other hæmorrhagies spoken of before. Of this plan, we can say nothing from our own experience, having never tried the remedy but in one instance; but in this it did not benefit the patient—this, we had afterwards reason to believe, was a case of splanchnic hæmatemesis; in which we would not advise this remedy; in the other forms, the same objections do not attach; for nothing but palliatives can be useful in the symptomatic form of hæmatemesis.

3352. 2d. It is not sufficient for the welfare of the patient, that we arrest the discharge of blood from the stomach for the time being; our endeavours should extend beyond this—we should aim at preventing a return. For this purpose *much* will be required from the physician, and *more* from the good sense and moral courage of the patient himself. For it would be vain for the physician to lay down proper rules, if the patient will not strictly conform to them.

3353. We would in all cases of this kind recommend the most strict rules of diet—nothing stimulating or indigestible should be taken into the stomach; on the contrary, the most bland, (par. 3272,) should be persevered in, until such a condition of stomach is acquired, as will profit sooner or later by a more generous regimen—but let the patient obtain the leave of his physician before he venture upon a change.

3354. The bowels should be kept open by artificial means, if they require to be urged—for this purpose the simple rhubarb

* For this purpose nothing answers better than a large table-spoonful of common salt, dissolved in a pint of warm water.

† A gill of water, and sixty or seventy drops of laudanum.

pill will be found to answer best; unless it be a case depending upon suppressed hæmorrhoids; then, the addition of aloes will be important.

3355. Exercise should not be neglected; especially by such as have no visceral lesions to contend with. If the strength has suffered much, tonics may be required; but they should not be of the stimulating kind—the mild vegetable bitters, and the sulphuric acid will answer best.

3356. We must never lose sight of the remote causes of this complaint; for unless they be removed, we cannot expect to conquer this affection. Therefore in females, regard must be paid to their menses—if obstructed, our first endeavour should be to restore them; and so on, with the other evident causes.

SECT. IV.—HÆMATURIA, OR VOIDING BLOODY URINE.

3357. This disease is one of rare occurrence, either in an idiopathic or symptomatic form; but more especially the former. This fact would excite our wonder more, did we not constantly seem to forget, either the anatomy or physiology of the organs from which, at least, one species of this disease proceeds—namely, the kidneys. The extreme vascularity of these organs, and the severe duties they are destined to perform, render them liable to all the mischances, that such organization, and functions, are subject to. The quantity of blood which passes through these glands, is calculated to be one-sixth of the whole mass; and the quantity of fluid it separates from it, is under the best circumstances of health very great; but under some forms of disease, it is truly enormous. When we consider these circumstances, we are only astonished, that the disease in question is not of more frequent occurrence than we really find it; for, as we have stated, the idiopathic form of hæmaturia, is rarely met with.

3358. Frank tells us, that of four thousand patients with serious diseases admitted into the Clinical Institute of Pavia, in ten years, there were but ten afflicted with idiopathic hæmaturia. Of 1913 patients that he prescribed for in a similar institution at Vienna, in the course of seven years, there was but one case of hæmaturia. And of 13,647 deaths in the General Hospital of the same city, there was not one of hæmaturia. He says however, that to understand why hæmaturia is so rare, we must be apprized, that he has not confounded it with hæmorrhages of the ureters, hæmorrhoides of the bladder, nor with hæmorrhage, from any other cause, that may proceed from this organ—in a word, he confines the disease, in his account of hæmaturia, to a flow of blood from the kidney or kidneys themselves. But in a practical point of view, this limitation is neither necessary, nor useful.

Definition.

3359. Hæmaturia is a flowing of pure blood, generally fluid, but sometimes coagulated, or mixed with the urine in a greater or smaller proportion, and discharged by the urethra—it may be red, dark, black, or only bloody, yielded by the kidneys, the ureters, or the bladder.

3360. This disease may be either idiopathic, or symptomatic. The first form, as we have just stated, is very rare; the latter much more frequent. The idiopathic may proceed, from an engorged state of the kidneys, as generally happens, in every other kind of hæmorrhage; a vessel giving way in this instance, will constitute hæmaturia; and consequently, may be useful, if not excessive, or it may be hurtful, by its excess. This engorged state of the kidney, may proceed from any cause capable of directing an unusual flow of blood to this organ; as the congestive stage of fever; calculous concretions; diuretics unduly urged, or of too great power; as all the terebinthinate substances; cantharides; Harlæm oil, &c. The symptomatic, may arise from certain fevers, as the putrid, as it is called; small-pox, measles, and in a very recent instance, it proceeded from scarlatina; affections of the bladder; as inflammation either active or chronic of the mucous coat; vascular tumours within the bladder; a scirrhus condition of this organ, or the ureters, &c. We know of one instance in which it appeared to be produced by a suppression of the menses; in this instance its return was periodical, and seemed to obey the menstrual interval, and did so until the menses were restored. Suppressed hæmorrhoidal discharge has also been followed by hæmaturia. In many instances, this affection is really brought on, after it has been once established—any over-exertion, or violence, will produce it; and perhaps nothing sooner than jolting over rough roads, or riding a rough trotting horse.

Symptoms.

3361. The symptoms which attend hæmaturia, will vary in a certain degree, as the hæmorrhage may be from the kidneys, the ureters, or the bladder.

Renal Hæmaturia.

3362. In the first variety, there is very little pain, unless the disease be caused by the mechanical irritation of a calculus. The most that is observed, is a dull sensation, and tension in the re-

gion of the kidneys; a slight fever, a general heaviness and lassitude. The blood for the most part flows freely; is of a vermilion hue, and accompanies the urine. If it proceed from a calculus, the sufferings are sometimes great—a dull distressing sensation is felt in the seat of the kidneys, attended by frequently repeated lancinating pains in the course of the ureter, from the kidney to the bladder; retraction of the testicle in the male, and shooting pains down the thighs, in the female; more or less fever; thirst, nausea, and vomiting.

Hæmaturia of the Ureter.

3363. In the second variety, the symptoms are much the same in most instances; except that the blood flows in much smaller quantities; owing to the vessels of this duct being much less. The pain is principally felt during the discharge of urine, and follows the course of the ureter from the point of irritation, to the bladder. Should a calculus be the cause of irritation, it may excite inflammation, which may terminate in the formation of pus, and this may be evacuated with the urine—this is a much more aggravated case, than when the flow of blood proceeds from mere engorgement of the ureter, and one much more likely to be followed by serious consequences.

3364. Frank in treating this subject, gives a very rational and satisfactory explanation of the formation of the substances expelled from the urethra in both these varieties of hæmaturia, and which have been gravely given as cases of the expulsion of worms from the bladder.

3365. He says, “lorsque le sang fourni par les reins ou par les uréters ne peut parvenir dans la vessie, il se coagule et forme de caillots irréguliers ou cylindriques, des polypes allongés et minces qui ressemblent à des vers ascarides, et présente une couleur brune, noirâtre, ou d’un blanc jaunâtre. Ces polypes obstruent complètement les conduits; quelquefois l’urine les creusant dans leur partie moyenne, ils deviennent tubuleux, et permettent le passage à ce liquide. Ils parviennent sous l’une et sous l’autre forme dans la vessie, sortent par l’uretre, et en imposent aux personnes qui ignorent ce phénomène, pour des vers rénaux ou vésicaux. Lorsque le sang rencontre un obstacle près de la vessie, l’uretere se dilate au-dessus, son diamètre devient quelquefois triple, il egale même celui de l’intestin grêle, comme nous avons eu occasion de l’observer.”

Hæmaturia of the Bladder.

3366. In the third variety, the blood proceeds directly from

the bladder; and this organ being unaccustomed to the presence of blood within its cavity, becomes highly irritated. This is the case, whether the blood which occupies the bladder proceeds from its own engorged parietes, or is received from the kidneys, or the ureters, the irritation and disturbance is the same. This gives rise to a pain confined to the region of the bladder, caused by the presence of the urine and blood, when these are even in small quantities; frequent desire to void it will necessarily follow; dysury, tension, heat in the hypogastrium. The urine after standing, is found to contain a viscid, puriform, and offensive matter, which settles to the bottom of the vessel in which it is received. To this follows nausea, vomiting, faintness, cold sweats, a weak and frequent pulse. The blood rendered with the urine, is small in quantity, and is of a dull or black colour. The discharges may occasionally be looked upon as critical.*

3367. After the bladder is thus emptied, the greater part of the symptoms just named become less intense; the urine flows clearer, and with more ease; unless a clot of blood should suddenly form at the neck of the bladder, and excite this organ to painful efforts to expel it. The hæmaturia of the bladder is not always, however, attended by symptoms so severe as those just stated; for the blood will sometimes flow freely from the bladder, unaccompanied by any unpleasant sensation. We may nearly always detect the presence of blood in the urine, by its forming a kind of coagulum at the bottom of the vessel.

Prognostic.

3368. As regards the issue of hæmaturia, much will depend upon the nature and force of the remote cause. Should the disease be caused by calculi or stone either in the kidney or bladder, much may be apprehended, as we cannot limit the extent and frequency of the irritation, nor with certainty remove the offending cause. If it be a symptom attached to any other disease, the degree of danger will be in proportion to the risk occasioned by the disease of which it is a symptom—as small-pox, typhus, &c.; or if caused by a chronic affection, the same may be said, but it will not perhaps be so violent, but may be of longer continuance. As a general rule, this affection may not be looked upon as highly threatening, unless the disease with which

* Frank mentions a curious circumstance connected with the transfusion of blood; and if it be not altogether accidental, it deserves the attention of both the pathologist, and physiologist. He says, “in fifty animals that were subjected to the experiment of transfusion, twenty were attacked with a discharge of bloody urine.”

it is associated be in itself incurable. When it depends upon the suppression of some other discharge, upon plethora, violent exercise, temporary excesses, or debauch; when the quantity of blood rendered is small in quantity, and its returns not too frequent, we may expect the disease will disappear by proper treatment.

3369. But when it happens to old people, or such as have exhausted constitutions, though the discharge itself may not from its quantity appear threatening, yet there is no security against a clot of blood, formed within the kidneys or bladder, becoming a nucleus for a stone, in either of these places. Or should it be excessive or very frequently repeated, it may like other hæmorrhages, cause extreme debility, or dropsy.

Treatment.

3370. The safest and most simple mode of treating hæmaturia, is to view it like an hæmorrhagy from any other organ or surface of the body; and be guided by the same indications as present themselves upon any other similar occasions. That is, if the patient be plethoric, bleeding, leeching, and cupping should be resorted to; if the pulse be very active, an adequate quantity of blood should be drawn from the arm; if the pulse be less active, and not indicate a necessity for this general abstraction of blood, leeching or cupping immediately from over the kidneys should be resorted to, and repeated if necessary. Rest of body, and tranquility of mind, should be enjoined; the patient should sleep upon a matrass, instead of a feather bed, and his lower extremities should be kept warm. The bowels should be opened by either of the neutral salts, and a strict antiphlogistic regimen should be observed. All exertion should be prohibited, such as lifting weights, &c.

3371. Should the pulse, however, not betray febrile excitement, or plethoric fulness, bleeding need not be employed, either generally or locally, unless pain is felt in the region of the kidneys. In this case, much benefit is derived from topical depletion. In feeble habits, and in leucophlegmatic patients, mild astringents are highly useful—among these, the infusion of red rose leaves is we believe the best of this class.* It should be continued for several days together. The next in quality, is the extract of rhatany.† The sugar of lead has been recommended, but we cannot speak of its powers from our own experience.

* R. Fol. rosæ. rub. ℥ss. Take red rose leaves, half an ounce. A pint of boiling water to be poured upon them and allowed to stand until cold—strain off as wanted. A wine-glassful every two or three hours.

† R. Ext. rhatan. ℥ij. Take extract of rhatany, 2 drachms, f. pil. xl. Two every two or three hours.

Ten grains of Dover's powder at bed-time, we have thought highly useful. The muriated tincture of iron in ten or twenty drop doses three times a day Dr. Eberle extols very much. He also recommends a combination of alum and ipecacuanha.* If the bleeding be caused by a calculus in the kidney or bladder, recourse must be had to opium if the pulse will bear it; the warm bath, and topical depletion from over the kidneys by cupping or leeching.

3372. The patient should drink freely of demulcent drinks—such as gum Arabic water, flaxseed, or watermelon-seed tea; barley water, slippery-elm bark tea, &c. All diuretics, as squills, nitre, &c. should be withheld.

CHAPTER XV.

RHEUMATISM.

3373. DR. SCUDAMORE defines rheumatism, a “pain of a peculiar kind, usually attended with inflammatory action, affecting the white fibrous textures belonging to muscles and joints, such as tendons, aponeuroses, and ligaments; the synovial membrane of the bursæ and tendons; and nerves; occasioned by variable temperature, or by direct cold or moisture.”†

3374. He divides this disease into two species, “acute and chronic;” the former he subdivides into “the acute, and sub-acute.”

3375. The *acute* is thus characterized, “pain with inflammation of the ligaments of the joints, and usually those of the larger joints; or of tendons and aponeuroses; of the sheaths of tendons; of bursal membranes; and of nerves; aggravated by motion; for the most part attended with external redness of a bright red colour; and with fever which has exacerbations, and sometimes distinct remissions; with copious partial perspirations, commonly of an acid odour; and high-coloured urine, depositing abundantly lateritious sediment.”

3376. The definition just given is certainly comprehensive, and much more satisfactory than that of Dr. Cullen—yet, it must still remain doubtful, whether the seats of the affection are strictly

* Pulv. aluminis. ℥j. ipecac. ℥j. M. div. in x. One every morning, noon, and evening.

† Treatise on the Nature and Cure of Rheumatism, &c. p. 11.

represented by those laid down in the definitions; as it seems that almost, if not every structure is occasionally the seat of rheumatism. While on the other hand, the morbid changes produced by rheumatism, even where it has been both long-continued and severe, have not been in general so unequivocal, as always to point out this inflammation as the cause of them; as the muscular fibres, the bones, &c. are said to be liable to this disease.

Symptoms.

3377. This disease, like other phlegmasiæ, is usually ushered in by a sensation of cold, and sometimes by a chill of some continuance; we once knew it to continue for more than an hour, and was supposed to be the forerunner of an intermittent; at other times, slight and repeated shivering mark its commencement. The heat which succeeds the coldness does not always extend over the whole body—we have known it to be confined to the upper portions of the body, or such as were nearest to the source of circulation, while the feet and legs have remained cold, though portions of these parts afterwards became the seats of the affection. At other times a general soreness or rigidity of the whole muscles of the body would announce the complaint, especially in those who are liable to the disease. We have known head-ache, and a deranged state of the stomach to be the forerunners of rheumatism; sometimes nausea and vomiting of a bitterish acid fluid, would accompany the head-ache, &c.; this would especially happen when this disease has been provoked by some little excess in eating or drinking.

3378. Soon after these premonitory or constitutional symptoms show themselves, some one portion of the body, to a greater or less extent, would become affected with pain; and as the lower extremities are more liable to these attacks than the other parts of the system, the ankles and knees are generally selected for the local affection. Pain, swelling, and redness now show themselves; and the degree of either appears to depend, according to Scudamore, upon the tissue involved. "If the bursæ be the seat of inflammation, there is considerable swelling, but scarcely any discoloration of the skin, and sometimes not the slightest alteration in this particular. If the tendons and ligaments be affected, there is more or less redness of the surface, which is usually of a vivid colour, and is often in patches. When the tendons are inflamed, their sheaths are excited to increased secretion, and they are found distended." p. 20.

3379. The hips, thighs, or back, may also be the primary location of rheumatism, and from either it may extend with more or less rapidity to other portions of the body, or it may confine

itself to the part it originally seized. The attack may be more or less sudden, or more or less extensive and severe. We remember a highly respectable clergyman, in the year 1792, from a very sudden check of perspiration, after being much heated by severe bodily exercise, becoming in a few hours immoveable in his bed; for every portion of the body participated largely in the affection. Or it may attack a single portion of the body, and have to follow it, nearly a similar disability to move. Villeneuve says he saw a joiner suddenly seized with lumbago, which riveted him to the spot, being incapable of any kind of motion.*

3380. Fever, to a greater or less degree, becomes fixed; it has remissions, but rarely intermissions—the remission for the most part, does not take place until towards morning, and after the patient has passed a wretched night; for pain is commonly in proportion to the degree; or rather perhaps in this acute form it may be said that fever is in proportion to pain; and this pain, is constantly found to be worse at night. The occasional increase of pain in rheumatism, is in various degrees, but is almost always fluctuating from one extreme to another; sometimes sudden and lancinating like an electric shock; at others, pulsating, obtuse, and gnawing, as if “the flesh were torn from the bone by dogs,” &c. For the most part, the articular portions of the limb, when a limb is the affected part, is more painful than the other portions, and oftentimes it is confined to it. It is always increased by attempts to move the limb or joint. Sydenham has remarked, that the pain increased sometimes after the fever had abated. Some have thought that women suffer more than men in attacks of rheumatism; and that this disease in hot climates, suffers no abatement of intensity.

3381. The pulse in rheumatic fever is almost always hard and full in the beginning; but the hardness diminishes, as soon as sweating takes place—it may then be said to be soft, owing perhaps to the greater fulness or dilatation of the artery. There is generally, a peculiar quickness in the stroke of the rheumatic pulse, which is not always combined with frequency—we have a patient at this moment, in which this peculiarity exists in a remarkable degree, and this took place as soon as the perspiration became profuse.

3382. The heat of the skin is almost always increased; or rather it seems to keep pace with the fever. It is pretty equally diffused over the body, though rather greater in the affected parts. The heat is of a peculiar character; it is sharp and burning; and resembles the sensation of heat given by a hot fire; nor is it diminished by sweat breaking out, as in ordinary autumnal fevers;

nor does the patient, except in a very few instances, feel the least relief, however profuse, or long-continued this may be. Indeed, in some instances it seems, that the patient is not much relieved until these sweats diminish, or cease altogether; they therefore cannot be looked upon as critical; and certain it is, as we have often had occasion to observe, that little or no risk is run, by occasional exposure of the body to the air, during this period.*

3383. When rheumatism exists with any intensity, there is always more or less swelling takes place in the parts affected—this is more remarkable however in the smaller, than in the larger articulations; hence we find the hands and feet more swelled than the ankles, knees, or elbows. This swelling is said to arise from a sudden effusion of lymph, or serum in the cellular membrane; and is thought to afford relief. This may be so, when the swelling is occasioned by the pouring out of *serum*, but not so when *lymph* is yielded; for we have seen every symptom aggravated after swelling has taken place. The first may be known, by the part retaining the print of the finger when pressure is made; while the latter is firmer and is elastic. It seems to require a more exalted state of inflammation to pour out lymph, than to effuse serum.

3384. Acute rheumatism is almost always attended by redness in parts affected; but this is not constant, nor is it always equal in intensity. Much of this however will depend upon the severity of the case, the parts affected, and the degree of swelling. If the internal inflammation be great, the skin will be proportionably involved, unless the disease be very deep-seated. For we have seen an entire limb from the hip to the toes, severely affected by rheumatism; on the thigh there was no discoloration, nor was there any on the thick part of the leg; but the hip, (immediately over the trochanter,) the knee, ankles, and toes, were very red. If the parts affected be but thinly covered, by other structure, there will almost always be redness, as about the knee, and ankle joints, &c. and the swelling may be very great; in which case the redness may be prevented by the distention.

3385. One of the most remarkable features of rheumatism is its liability to metastasis; though much less so than gout. It rarely happens, that the acute form, remains stationary as regards

* According to the experiments of Anselmino upon the nature and composition of sweat and insensible perspiration, which gained the prize offered by the Heidleberg Medical Faculty, the sweat of a person who had been long labouring under rheumatic fever was the same as common sweat. But that the critical sweat of a person labouring under acute rheumatism, contained albumen, and the product of its distillation was alkaline. The day after the crisis, however, the sweat contained no albumen.

the affected part during the whole progress of the disease; nor can we by any process of reasoning, or deduction from cases, anticipate when this is about to take place, or what part it will select for its new habitation; for it is not regulated by proximity, size, nor similarity, though structure may have some influence—but this is by no means constant. In the case alluded to above, we say the translation was made to the opposite limb and precisely to the same extent. In this case, the lady found the change to be complete in the course of a night—and the newly-besieged limb, was more painful, than the one from which it was transmitted, at the moment the change began. And what may be considered remarkable in these changes, is, that the intermediate parts suffer no inconvenience during the translation.

3386. We have noticed, that fever of more or less intensity, always accompanied the acute form of rheumatism; this for the most part gradually augments, with the increase of the local affections. We have also observed, that the pain was severer during the night, than in the day, for a remission is pretty sure to take place, towards the morning. This fever, however exasperated, is never, as far as we have observed, attended with the same extent of disturbance of the system, as from the same apparent degree of fever, of the intermittent or remittent form. It is nevertheless evident, that it is attended almost always, with pretty strongly-marked gastric alterations; thus thirst, white tongue, loss of appetite, and constipation, are very constantly present.

3387. Delirium is a rare attendant as far as we have observed in this disease; the intellectual faculties, may however occasionally suffer, more or less; there is usually great anxiety, with almost an entire loss of sleep, or a constant watchfulness, that does not seem to arise altogether, from the continued existence of pain.

3388. Respiration is never directly affected, (that is, the lungs themselves do not appear to be a seat for rheumatism,) but it may become so, in consequence of the disease fixing itself upon the intercostal muscles, or diaphragm. We have seen respiration almost suspended when this affection has fixed itself on either of these parts, from a sudden metastasis.

3389. The secretions from both the skin and kidneys are sometimes much increased; sweat, we have remarked, is oftentimes very abundant in rheumatism, without being critical, but in very few instances. Its smell is acid, and peculiar; so much so, as almost to characterize the disease. The urine is for the most part red in the beginning, and not very abundant, while the sweating continues to be profuse—it however rather increases as the disease advances; but when upon the decline, it deposits a lateritious sediment. The urine is sometimes very dense, and

very high-coloured; resembling a mixture of blood and urine; but we have never seen this but upon two occasions; once in a female, and the other in a male—in both instances they appeared to be critical. In the female, the region of the kidneys was the seat of the disease; in the male, it extended over nearly the whole body. It has been remarked by a number of authors, that the face has, in many severe cases, a peculiarly greasy, and shining appearance.

3390. It seems to be pretty generally agreed, that a natural condition of the skin, that is, a freedom from huskiness, and an exemption from sweat, is an essential condition to recovery. If with this change in the state of the skin, there be a corresponding alteration in the pulse and tongue, the first becoming softer, smaller, and less frequent, and the latter clearing; if the urine should lose its intensity of colour, and should deposit freely; if pain abate in severity, and increase in constancy, we may conclude that convalescence is about to take place sooner or later. We say sooner or later—for there is no disease which leaves the system with so much reluctance or in so uncertain a condition as regards recovery, as rheumatism.

3391. For though the favourable signs just enumerated may take place, there is no security they will continue; for the slightest exposure, errors in diet, or without any appreciable cause, the whole of the distressing symptoms may return in a moment, and involve the patient anew in serious disaster. Or he may have for a great length of time, transient pain; or permanent stiffness to contend with.

3392. This disease, notwithstanding its painful severity, is rarely fatal; we have never witnessed a single instance of death when it preserved its original locations, though we have seen much danger from its metastasis to some important part, and once death, when it flew to the heart. And within a few days we saw it attack this part so suddenly and violently, as to threaten immediate death; respiration was nearly suspended, and the action of the heart so impeded, as to cause the most serious, and justifiable alarm.

Predisposing Causes.

3393. Many causes have been enumerated as giving disposition to rheumatism; as hereditary conformation; constitution; temperament; age; habits of life; profession, &c. &c. It is difficult however to understand how some of these causes contribute to this end; while others would appear to be sufficiently obvious; for instance, of hereditary conformation, as a predisposing cause, we can know but little; for, as Dr. Scudamore justly observes, from

it "inferences can be drawn only from general reasoning, observations, and facts, and not from positive demonstration, therefore we cannot pronounce it with certainty to be a cause." (p. 35.) While it appears plain, that a robust and vigorous constitution, and certain habits of life, may do so; for the first seems *naturally* to dispose the system to take on inflammation from the application of almost any *exciting* cause; and it seems equally plain, that the same disposition may be *artificially* created by the second. And though we do not exactly understand, why youth on the one hand shall to a certain extent give an immunity to this disease; or that age on the other shall increase the liability; yet we are obliged to acknowledge it to be a fact, if any reliance can be placed upon the observations of writers upon this subject.

3394. Thus, Chomel says, that of seventy-three patients in "l'Hopital de la Charité," affected with rheumatism, thirty-five were from fifteen to thirty years of age; twenty-two from thirty to forty; seven from forty-five to sixty; seven were above sixty; only two before fifteen, to wit, one of eight, and the other of nine. Bichat attempts to account for this, by saying, in early age the fibrous system is soft, while in old people it becomes more and more dense. Dr. Heberden says, "the rheumatism has appeared as early as in a child only four years old, and I have seen several afflicted with it at the age of nine years."* And Dr. Davis, in his dispensary report, says, that "at the end of March, and in the beginning of April, several cases of acute rheumatism were admitted, in children of three, four, five, six, and seven years of age, and upwards."†

3395. Dr. Scudamore thinks, that predisposition "to acute rheumatism, is from fifteen to thirty; and to chronic, from thirty to sixty"—but this certainly has many exceptions. And he also observes, "that whatever causes induce debility, either generally or partially, predispose the body to rheumatism." He also enumerates local injuries, as dislocations, strains, or contusions; an unhealthy state of the digestive organs, sex, season of the year, &c.

Exciting Causes.

3396. The same author insists that, "variable temperature, experienced either generally or partially, is the only exciting cause of rheumatism;" and, that "this happens through the medium of moisture, or of cold air alone; or more especially of both conjoined, operating upon the whole body, or in part, according to the particular susceptibility of the patient; and according to

* Commentaries, p. 400.

† Medico-Chirurg. Rev. Oct. 1827.

circumstances of exposure, and insufficient protection in clothing. In common language, we use the term cold; but this is of relative signification; and the cause of injury consists rather in the influence of variable temperature, than of absolute cold upon the body when wholly in a state of relaxation. For example, exposure to the night air after much perspiration from dancing; a stream of cold air upon some part of the body when placed in a hot room, especially if the skin be relaxed; for in connexion with this state of the surface, the several textures beneath are more readily disturbed in their functions; and we may reasonably argue that rheumatism is produced, not from the mere suppression of perspiration, but from the disturbance in the economy of the cutaneous circulation, which is quickly communicated to the fibrous textures, or synovial membranes, or nerves. Any check (reduction?) to the temperature of the skin, so permanent, that healthy reaction does not take place, may be considered as an application of cold, calculated to excite rheumatism." p. 43, &c.

3397. In nothing relative to disease, is the opinion of medical men more concurrent than that *cold* in some form or other, is the exciting cause of rheumatism, and it is now also pretty generally agreed, that it is the fibrous tissues that become the seat of this affection. The fibrous tissues comprehend the articular capsules, or synovial membrane, the ligaments, the aponeuroses, the sheaths of tendons, the tendons, the periosteum, the pericardium, the dura mater, the sclerotica, &c.; to which may be added, agreeably to Burdin, (Dict. des Scien. Med. Vol. 48, p. 480,) "the stomach, the intestines, the bladder, and the uterus, each of which shows a white fibrous tissue, and which may become secondarily in these organs, the seat of rheumatism." The latter organ, namely, the uterus, we are certain becomes very frequently the *primary* seat of this disease. We have seen it follow abortion in a number of instances from the exposure of the feet to wet; and we regard dysmenorrhœa as a periodical rheumatism, affecting the uterus, during the menstruous secretion. The degree of cold, or its greater or less application, may in some measure determine the seat of this affection—thus the more superficial fibrous tissues may be the ones affected by moderate exposure, while a longer continued, or a more intense degree of it, may penetrate further, and reach the same kind of tissues, that are deeper seated.

Proximate Cause.

3398. It appears, that the *proximate cause* of rheumatism is a phlogosed state of one or more portions of fibrous tissue; and

that "when many of the ligaments and tendons are inflamed, high constitutional irritation arises, as also does fever. Next in order, the tendons excite this sympathy, those, namely, that are confined in sheaths; for tendinous fibre, and aponeurotic expansion, may be inflamed without much disturbance of the constitution; as we observe in the most painful lumbago, or in the form of complaint commonly called stiff-neck. Redness of the surface appears almost exclusively when the superficial ligaments and the sheaths of the tendons are affected. Bursal inflammation is seldom accompanied with discoloration of the skin. Pain is felt most acutely accordingly as the parts affected are deep-seated, and abates very much in proportion as swelling occurs."*

Diagnosis.

3399. Rheumatism can only be confounded with gout; yet, the peculiarities of each disease are so obviously marked as to render discrimination sufficiently easy. The following schedule of the diagnoses of these diseases, is taken from the "Dict. des Sciences Med. Vol. 48, Art. Rheumatism."

Predisposing Circumstances.

RHEUMATISM.

Youth to ripe age, either sex, sanguine temperament, constitution robust, laborious professions, poverty. Not evidently hereditary, predisposition not innate.

GOUT.

Mature and old age, men, nervous temperament, constitution irritable, opulence. Commonly hereditary, predisposition innate.

Exciting Causes.

Rapid changes from heat to cold moisture, perspiration suddenly suppressed, gross living, exertion, compression—all agree, that the sudden application of cold is the direct cause.

Sedentary habits, perspiration slowly, diminished, nutritious and stimulating food, abuse of ardent liquors, coffee; enervation from the pleasures and pains of the mind—not excited by cold.

Seat.

Fibrous and muscular tissues; the great joints; rather superficial, occupying a large surface, a variety of places at the same time. Parotids frequently affected. The first attack, its seat uncertain.

Synovial capsules, or at least the white portions of the articulations, not sensibly extending to the muscles; the small articulations. Deep-seated, concentrated, never attacking the whole of the articulations, and successively. Parotids never affected. First attack generally limited to the big toe.

Invasion.

Sudden, without disturbance of stomach, for the most part,

Preceded by perversion and disturbance of the digestive powers; diminished or augmented appetite; disturbed sleep; loss of energy.

* Scudamore, p. 55.

Symptoms.

Pains in different parts of the body, but especially the joints, and especially when acute; pain spreading, dull, and squeezing, (comprimante,) pain and swelling coming on together; redness, if any, rather pale. Cessation of pain not followed by complete relief. A moderate power to translate itself to other parts.

Pains chiefly in the articulations of the great toe, returns regular or irregular, the appearance or non-appearance, at the fixed periods, or the premature disappearance, is followed by various lesions of the internal organs, and especially the stomach; pain pricking, shooting, dragging; swelling succeeding pain; redness deep, resembling erysipelas. Cessation of pain followed by great relief; great disposition to metastasis.

Duration.

First attack often very long: an attack rarely lasting less than four days.

First attack not long: sometimes only twenty-four hours.

Metastases.

Seldom, and slow. Rheumatism rarely quitting the articulations and muscles, to take possession of an internal organ, especially when it is acute.*

Frequent and sudden. The gout abandoning its common seat, to fix upon the viscera, especially those of digestion.

Relapses.

An attack happens often, without being followed by a second. The returns are hardly ever spontaneous; they are commonly provoked by new exposures to the primitive cause of the disease. These returns are at uncertain intervals. Rheumatism is sometimes epidemic.

A second attack almost always takes place a few years after the first. The returns are without provocation; they generally increase in frequency, duration, and intensity. They are often periodical. Gout is never epidemic.

Species.

Acute rheumatism—chronic much more frequent.

Common gout—asthenic much more rare.

Prognostic.

Radical cures sufficiently frequent. Affections produced by metastasis, not very dangerous.

Radical cure, rare and difficult. Metastasis to the internal organs, often fatal.

* Dr. Scudamore says, "it is in a remarkable degree the disposition of rheumatic inflammation *quickly* to change its seat; and the abatement of sufferings in one part, does but prepare the way for other parts to be similarly affected. This transfer of the symptoms takes place with surprising quickness; and with more frequency of change than in the gout." p. 22. This statement has a little surprised us, as it is certainly not agreeably to our own observations, nor of most others who have treated of this subject. That rheumatism is disposed to metastasis we have admitted; but we think it only remarkable, because, there is no other disease but gout, that is so strongly marked in this particular, if we except the occasional transfers of erysipelas. It may, however, be remarked, that this disposition to change, is more frequent in some habits, than in others. We have two patients, who rarely have an attack of rheumatism, without experiencing a metastasis; while we have many that have never experienced it.

Appearances after Death.

Gelatine and albumen in the muscular and ligamentous meshes.

Swelling of the articular extremities; concretions in the articulations.

Prognostic and Metastasis.

3400. Rheumatism is rarely fatal, especially when it continues in its original seat, and confines itself to the external parts of the body. When this disease becomes dangerous, it is by its change of place, as this may be to some important or vital part, as the brain, stomach, or heart; and though of rare occurrence, it nevertheless occasionally takes place. More or less danger always arises from the change of place of the rheumatic inflammation; for though the newly-occupied place may not be of vital importance, there is no certainty that it will remain there; for whenever it takes on this erratic disposition, we have no security against subsequent wanderings; and the danger will then be in proportion to the intensity of the disease before it moved, the value of the organ it may visit, and the degree of injury it may inflict there.

3401. Metastasis may take place without any evident cause; we have seen this happen when the blame could not attach to any known circumstance. At other times, it has been driven from its original location, by the sudden application of cold to the body, or from the improper use of topical remedies, for it is the acute rheumatism that is most liable to change its situation, and it is for this form, that cold, and repelling applications are most frequently made.

3402. Parts that are debilitated, or over-excited, are the most certain to incur the shock of metastasis. Villeneuve says, that the brain has become the seat of invasion after the use of opium. A knowledge, therefore, of this disposition to change seats in rheumatism, and our entire inability to foresee when this may take place, should always make us careful of our prognosis, in severe, and especially, in unsettled cases.

3403. Dr. Scudamore says, "in ordinary cases, therefore, of rheumatism, our prognosis relates to the duration of the disorder, and probably there is no disease in which, as to this point, we can give a less certain opinion. The favourable circumstances are, early relief from the active treatment which may have been employed; the inflammation keeping its station very much in the parts first attacked; absence of delirium, and the constitutional irritation not intense; perspiration being general and moderate, and giving relief, instead of being partial, profuse, offensively acid, and seeming merely to occasion exhaustion; the pulse keeping within the range of 100 or 110 in the minute, and

being free from hardness; the tongue not very foul; the stomach not affected with urgent sickness, nor the bowels with painful irritation; the urine in the course of ten or fourteen days, losing its deep red appearance, depositing at the bottom of the vessel a lateritious sediment, and by degrees becoming altogether clear, the alvine discharges in the course of the same time, losing their unnatural fœtor and dark appearance."

3404. "The threatenings of a protracted disease, will be shown in the reverse of this picture; and more especially when the transfer of inflammation and pain quickly takes place from one part to another, again and again visiting the same parts, and being unmanageable in treatment." pp. 65, 66.

Of the Treatment of Acute Rheumatism.

3405. Unless some peculiar epidemical constitution of the air shall have imposed a character upon this disease, it will always be found to be inflammatory, and to have imparted to the sanguiferous system, sooner or later, a high degree of action; hence the full, and resisting pulse, that is always observed, until sweating takes place or has continued some time. In no disease, perhaps, is the antiphlogistic plan, more distinctly called for, than in acute rheumatism, when the local irritation is sufficient to call into action the circulatory system; nor in none, wherein relief so tardily rewards exertion. To what this may be owing, is perhaps difficult to point out—yet it would appear to depend, upon the nature of the parts involved in the disease, rather than to a mistaken plan of treatment.

3406. The disease obviously consists of inflammation of the fibrous tissues; the œconomy and anatomical characters of which, demonstrate how little they are under the controul of the general circulation; requiring great abstractions from it, before they can be made to feel the effects of the exhaustion; and hence, the little relief that is afforded, by even great losses of blood, when compared with these operations for disease, in several of the other structures of the body.

3407. However important the true pathology of disease may be ultimately, we are obliged to confess, that it does not always and immediately provide us with remedies, that are either certain or prompt in the removal of them. It nevertheless points out the class of remedial means, which is always the first step towards the discovery of specific, or appropriate agents; and after these are suggested, it must be left to a well-directed experience, to determine the value of the respective, or individual article, or articles, that may exert the happiest influence over the disease for which they were prescribed. For it is not enough to

the removal of disease, that we become acquainted with its proximate cause; for every tissue appears to have its own laws, or modes of action; and when these are deranged so much, as to become disease, it will require, some specific agent, or general power, the mode of action, of which shall be in opposition to that of the deranged structure.

3408. Thus, we see inflammations of the various textures, or even inflammations from various causes, removed in many instances by apparently opposite means; for stimulants and sedatives, as they are called, exert an analogous ultimate influence, upon parts labouring under phlogosis—hence, blood-letting and bark; the preparations of lead, and the nitrate of silver; cold water, and the spirit of turpentine, are found in their turn to remove it. What particular advantage is to proceed from the exact knowledge of the pathology of rheumatism, remains yet to be determined; for so far, none has followed, if we except the broad general acknowledgment, that it is an inflammatory disease—but none has resulted from the concession, that the fibrous structures are the seat of it. It is true, it has perhaps explained, why particular organs shall become the seat of this disease, when from certain causes it changes its location; and this is the extent of its usefulness up to the present moment. But do not let us despair of obtaining the most satisfactory and useful practical hints from this knowledge; for the laws of sympathy, and counteraction, are still but imperfectly developed; and though at this moment, we may be unacquainted with the speediest and most certain means of subduing this peculiar inflammation, we are nevertheless possessed of general remedial agents, that contribute with tolerable, though tardy certainty, to relieve it.

3409. The constitutional symptoms of acute rheumatism, declare it to be an active inflammation; pain, swelling, and discoloration, are its common attendants—pathological research, has determined its seat with considerable certainty to be, in the fibrous tissues; and experience has shown the necessity and eventual value, of the antiphlogistic plan of treatment above every other hitherto proposed. Yet all who have treated this disease by this plan, are forced to acknowledge, that it is slow in its operation, as well as uncertain in its relief. Now whether this want of success in combating *rheumatic* inflammation, (for we believe it is entitled to this distinction,) is owing to anatomical arrangement, and therefore perhaps insuperable, or from our not having yet discovered its counter-agent, remains to be determined, and consequently, we can only for the present, use such remedies as experience seems to decide to be the best; and of these bleeding both general and local, claims our first attention.

Of Bleeding.

3410. Bleeding, to be successful in rheumatism, must necessarily be governed by the same general principles as regulates its employment in other cases. And to render it efficient, or to prevent it from becoming hurtful, the name of the disease must in part be lost sight of, though its habits are to be kept in view, and its employment always determined by the state of the system—that is, by the force of arterial action; the degree of relief; the intensity of pain; the state of the skin, &c.

3411. When the arterial system is highly excited; when the pulse is tense, or even very full, and only somewhat resisting, we should employ this remedy sufficiently freely, to insure a more moderate state of the circulation, and a reduction of the force of the pulse. But in doing this, let it be remembered, as Dr. Scudamore very justly observes, that “it may be laid down as a principle, that as relating to the local inflammatory action merely, that it is not an agent in which we should place our confidence; for it disappoints our expectation of relieving the pain of the disease, unless as the pain and local inflammation may be connected with the true inflammatory diathesis.” p. 69. In nothing is the young, or inexperienced practitioner, more certainly disappointed, than in the want of power of blood-letting, over the agonizing pain of acute rheumatism—for on it he had placed much reliance, because every thing seemed to demand its employment, and every thing to promise success.

3412. We have known this failure of blood-letting to procure relief, to engender a belief, that it must be an improper remedy in acute rheumatism; and that stimulants were alone indicated. We once saw death nearly ensue from this error; and the patient had to compound for it, by the loss of the use of one hand; as the wrist, and the joints of every finger of that hand had become ankylosed. Let it therefore not be imagined, that because the abstraction of blood does not produce immediate relief, that it is not the proper, and even an important remedy; at least, let it be viewed as one that will diminish danger, if it does not suddenly overcome suffering.

3413. In some few instances we have seen remarkable relief afforded by this remedy, whenever it was employed; and when this happens it should be resorted to, when pain becomes aggravated, and febrile excitement renewed, be this several times in the twenty-four hours. While on the contrary, we should withhold the lancet, when it fails to mitigate suffering, or to diminish arterial action—for we have seen this happen when both seemed to call unequivocally for the use of the lancet. Indeed, in a few

instances, we have thought that this remedy seemed to increase the rapidity of the circulation, without perceptibly diminishing the force of the pulse. We have also thought, that blood-letting was constantly less successful, where profuse sweating was accompanied with great heat of skin; and on the contrary, that it was pretty sure to afford relief, whenever the skin was hot and dry. In some few constitutions, blood-letting seems but to increase the irritability of the heart.*

3414. Though we do not employ bleeding expressly to mitigate pain, we nevertheless use it, that other remedies may effect this; for without blood-letting, in most instances, where the general system has been roused into sympathy, it is the only remedy that can pave the way for the employment of opium. In this climate it may be well to observe, blood-letting can be used to a greater extent, than in most of the European countries; and therefore, the apprehensions expressed by many of the writers of those countries, namely, that blood-letting is of doubtful efficacy to say the least, will not apply to this disease, in this country.

3415. On this account, we cannot agree with Dr. Scudamore, that even extensive blood-letting necessarily induces a chronic form of this disease, though a chronic form may follow its employment; for before we admit this, it would be well to ask, what the situation of the patient might be, were it not liberally employed—a condition we are disposed to believe, even worse than chronic rheumatism. Therefore, in such cases, we believe, nay we may say we are sure, that the chronic form was not *induced* by the bleedings; but that the bleedings were only *capable* of reducing the inflammation to the sub-acute or chronic form—if this be so, it only proves the inadequacy of the remedy,

* “Now if we mark the symptoms and progress of rheumatism in its acute form, we may observe very frequently that a well-developed febrile action, but without any symptom that would denote a local affection, precedes pain. Indeed there is an inflammatory fever first, and then rheumatism. We may also observe the erratic tendency of the rheumatic pain; they run, as it were, in the course of the distribution of the blood; the application of leeches will often remove the pain from one part, for it only to shift to another; and it is not unusual for it to leave the articulating tissues, to fix upon some of the internal organs, producing derangements of greater or less severity in their functions. It however happens sometimes, that a bleeding from a large orifice will put an end to the disease; as if the diminution of the mass of blood proportionably lessened the stimulus that caused these shifting irritations. When this happens, the buffy coat becomes less evident in the subsequent bleedings, and eventually disappear. But on the contrary, if the rheumatism does not give way to blood-letting, the buffy coat continues, and even becomes more evident, as we persist in repeating the venesections—the serum increases, while the coagulum decreases; and be the coagulum ever so small, it is nevertheless covered with a buffy coat, and this as long as the disease continues.”—*Andral, Path. Anat. Vol. I. p. 667.*

and not its hurtful quality. That it is unavailing sometimes, as we have stated above, we are free to admit—but these are perhaps but exceptions to the general rule. We think it therefore on every account the safest plan, to draw blood from the arm, so long as intense suffering, and an active pulse call for it; for if we should fail to subdue inflammation by it, and thereby fail to diminish pain, we nevertheless so far reduce arterial action, as to make the employment of narcotics, or sudorifics, if called for by the state of the skin, available.

3416. But a period almost constantly arrives in acute rheumatism, if proper depletion has been premised, where local bleeding may be put in requisition with much advantage; but this period must be permitted to arrive before it be resorted to, if we would expect the full benefit of this mode of abstracting blood. For there is truly a *local bleeding point*, as well as a blistering, or a sweating point; which if not observed, will very much diminish the efficacy, if not altogether destroy the usefulness of it. Therefore, that leeching or cupping may be auxiliary to general bleeding, the force of arterial action must first have been abated by the latter.

3417. We may then with much advantage have recourse to local bleeding, if pain, tenderness, and redness continue, provided the force of arterial action is sufficiently abated to render it available. For it is a fact, sufficiently well established to justify the declaration, that neither leeching nor cupping are in the slightest degree useful, so long as the pulse is very active and tense. Why this is so, it may be difficult to explain. May it not be, because the capillaries remain engorged, so long as the larger vessels continue to be filled? and that they will only yield their contents when these vessels make a demand upon them, from becoming comparatively empty?

3418. Be this as it may, the fact is certain, that no advantage is derived from leeching or cupping, until after the arterial tone is diminished. Nay, we think we have seen it mischievous sometimes, but certainly unprofitable, until after this time. If circumstances then require the further abstraction of blood, and it does not appear, that advantage can be gained, or that it would be imprudent to abstract it from the arm, we may resort to topical depletion; regulating the quantity to be abstracted by the exigency of the case. It is usual to apply the leeches upon the part affected; we are disposed, however, to doubt the propriety of this; for we think we have seen more certain good derived, when they have been placed around the margin of the pained part. The after-bleeding of these animals should be encouraged by covering the wounds with cloths wrung out of hot water; and they may be repeated, *pro re nata*.

3419. The same may be said nearly, of cupping; the cups should be applied at some distance from the pained or inflamed part, unless the pain be deep seated. There are two kinds of cupping, the wet and the dry. The first is where the scarificator is employed; and the second where it is not—each has its advantages. The scarificator and cups should be used, whenever it is desirable to abstract considerable blood; that is, from five ounces, to fifteen or twenty; if less than this be wished, and it is an object to produce irritation without a great expenditure of blood, the dry cupping answers admirably; for it serves the double purpose of taking so much blood from the capillaries, and of producing vesication; for dry cupping should almost always be carried to this extent; and this will be effected by the cups remaining attached for about three-quarters of an hour. It requires for the most part, that the scarifications should be crossed by the instrument, when a considerable quantity of blood is wanted; and sometimes, when the cups are applied to parts that do not yield much blood; as the lower part of the back and abdomen.

3420. As regards the choice of leeching, or cupping, much will depend upon the part affected, and the age of the patient—leeching, generally is best, near the smaller joints, and head, especially in young subjects; while cupping answers better near the larger joints, to the chest, between the shoulders, the back, and when the pain is deep seated.

3421. As much of our success in the treatment of rheumatism will depend upon the reduction of inflammation; and as this will very much depend upon the proper use of remedies, and especially, blood-letting, it becomes important that we do not withhold the lancet too early, or employ it unnecessarily. Experience has constantly shown, that the pulse, as regards its activity, or volume, does not always call for the further abstraction of blood from the arm—we have already said, that this, in certain cases, was not only unavailing, but injurious; therefore, it will require nice observation in some instances to determine where it must be employed, or when it must be suspended. We have in another place laid down Laennec's rules upon this subject, and to which we now refer, (see par. 1563,) remarking, however, in addition, that blood-letting is never advantageously carried to the same extent in rheumatism, as is found necessary sometimes in pneumonia, pleurisy, or in dysentery. Yet we think it proper to refer to Laennec's discrimination, lest the pulse betray us into error on this point.

3422. We should also guard against being led into mistake, from the appearances of the buffy coat upon the blood. This led Sydenham astray at first, but he subsequently corrected the error. And, though we strongly advocate the loss of blood in acute

rheumatism, and especially in robust and plethoric habits to a certain, and occasionally even to a considerable extent, we never should call the attention to the appearance of “size,” as a justification for its repetition; for we know from experience, that this form, or state of blood, will continue sometimes far beyond the period at which it would be proper to abstract more. The young practitioner must therefore be upon his guard, not to fall into the error of those who have made this circumstance their guide. And in acute rheumatism, as in every other active disease, attention should be paid to the age, constitution, epidemical influence, and location of the patient. See note par. 3413.

Purging.

3423. Purging, however useful, is not always eligible in rheumatism; not because it is not always an important auxiliary to bleeding, but because the extreme helplessness of the patient sometimes renders it very inconvenient and painful; and for these reasons cannot always be employed with advantage. But when this objection does not obtain, purgatives should be resorted to almost daily; or until the more violent symptoms have suffered abatement.

3424. For this purpose we almost always begin with a few grains of calomel, purging it off with neutral salts alone, or combined with magnesia. Say, for an adult, ten or twelve grains of calomel, and proportionably less for young subjects; giving after it, at the end of two hours, the above-named medicines in divided doses until they produce ample catharsis. We have also given with much advantage a solution of the sulphate of magnesia, or Epsom salt, in lemonade, with a small quantity of the tartrate of antimony.*

3425. Dr. Scudamore says he has “been much pleased with the effects of a draught composed of the carbonate of magnesia, carbonate of potash, sulphate of magnesia in small doses, tartarized antimony, lemon juice in fit proportion to neutralize the carbonate of potash, and the acetum colchici, with some agreeable distilled water and syrup. The draught may be taken in effervescence or otherwise. The addition of the tartar emetic is exceedingly valuable; for my increasing experience with this medicine convinces me, that it is one of the most useful remedies which we can employ for the removal of inflammatory action; and in proportion as we use it with judgment, so do we

- * Take 1 ounce of Epsom salt,
1 grain of tartar emetic,

Dissolve in eight ounces, or half a pint, of hot lemonade—when cool, give a table-spoonful every half hour, until it operate freely.

diminish the necessity of using the lancet." p. 92. "Upon the first administration of the tartar emetic, it usually sickens to the degree of causing vomiting; but this effect is useful, and it is surprising how quickly the stomach accommodates itself to this medicine. The maximum and minimum doses of tartar emetic, which I usually employ in the combination just spoken of, are one grain, and one-eighth of a grain; and of the acetum colchici, a drachm and a half, and half a drachm." p. 93.

3426. If we have reason to suspect any hepatic derangement; or if the alvine evacuations are bilious, the calomel should be repeated, from time to time, so long as these conditions may require it. When these causes for the exhibition of calomel exist, we believe it would be vain to attempt their relief by any other medicine; and we entirely agree with Dr. Scudamore, that this plan should be continued until the stools assume a natural appearance; after this the more gentle purgatives may be substituted.

Diuretics.

3427. It has always been found useful to encourage the discharges from the kidneys; this is sometimes well promoted by the purgatives; but we have found nitre in form of the antimonial powders, with or without the calomel, as may be judged best, (see par. 342,) highly useful in the more active stage of this complaint; and when this is abated, the vinous tincture of the seeds of colchicum in thirty or forty drop doses every four hours, answer exceedingly well. But the first of these medicines need not be continued after the urine becomes sufficiently abundant, and deposits a lateritious sediment; though its further employment may be useful towards the reduction of inflammatory action, if the stomach do not revolt. The tincture of colchicum may be persevered in as it exerts an influence over the rheumatic action beyond any medicine with which we are acquainted.

Sudorifics.

3428. It becomes rarely necessary in acute rheumatism to employ this class of remedies; for we have remarked above, that a dripping skin is no uncommon attendant upon this disease; but at the same time it affords less relief than any other evacuation. Yet it occasionally happens, that this state of the skin does not take place when it might be useful; or, that it has been checked by some means or other, to the aggravation of the existing symptoms; in this case, minute doses of the tartrate of

antimony, in the neutral mixture, will answer exceedingly well. For this mixture see par. 342.

Of Opium.

3429. An anxiety to relieve pain, very often leads to the too early use of opium in this disease. In some instances this produces an evident aggravation of every symptom, while in others it causes very serious mischief. Opium, like blisters, is very rarely neutral in its effects—it either does good or harm; great caution is therefore required in its administration. We have in many places inculcated the necessity of attending to the state of the system, before it is given, and in rheumatism this must not be lost sight of; it requires a well-subdued pulse; a freedom from particular determination to the head; a moist skin and tongue; open bowels; and a certainty that it does not from idiosyncrasy constantly disagree with the patient, before it can be exhibited with advantage.

3430. In some instances, and these are not very unfrequent, it is found, that opium in the ordinary forms will disagree with the patient—when this happens, it is always unfortunate for the patient, as he is deprived of the important aid of this valuable drug. Common laudanum must not however establish the rule upon this point, as it will very often disagree, while other forms of opium may be given without inconvenience; thus the black drop, the denarcotized laudanum or opium; the acetate or sulphate of morphia, or morphia, may be used, when the common opium or laudanum cannot. On this account, it is proper to yield to the humour of the idiosyncrasy, rather than attempt to force it. Thus we may give fifteen drops of the black drop, thirty of the denarcotized laudanum, or a grain of the denarcotized opium, or the sixth of a grain of morphia, or its acetate or sulphate, with great advantage, when the patient cannot take the common preparations.

3431. When opium is admissible in rheumatism, we generally exhibit it at bed-time, in the form of Dover's powder, (see par. 244,) provided the skin be not dripping—if the skin be too moist, we have often found much advantage in combining it with colchicum.* Dr. Scudamore recommends its use in the day when

* R. Tinct. vin. sem.
colchici gt. xxx. vel xl.
Thebaic. denar-
cot. gt. xxv. vel xxx.
Sacch. alb. ʒss.
Aq. font. 3j.
M.

Take Vinous tincture of
colchicum seeds 30 to 40 drops.
Denarcotized lau-
danum 25 or 30 drops.
White sugar ½ drachm.
Common water 1 ounce.
Mix.

To be taken at bed-time.

pain is severe. He says, "if all the indications of treatment are correctly fulfilled, we may also, with every propriety direct an opiate dose during the day, when pain is urgent." For this purpose, he recommends the opium to be combined with a neutral mixture and camphor,* which may perhaps exalt its virtues. When opium disagrees in every form, it is sad for the patient; especially where pain continues after the inflammatory symptoms have disappeared. In such cases, we have to rely chiefly upon the colchicum; Dr. Scudamore combines it with the camphorated mixture, and gives it every six or eight hours—we are in the habit of giving it every three hours without the camphor.

3432. Opiates are given in enemata sometimes, with great advantage; and by these means, the unpleasant effects experienced by their exhibition by the mouth, are sometimes entirely obviated—when laudanum is exhibited in the form of an enema, we must treble the ordinary dose; it should be mixed in two or three ounces of lukewarm water. Should the peculiarities named above exist, it will be well to try the other forms of opium, as recommended above, when it was to be taken into the stomach. It is almost unnecessary to repeat, that during the whole course of treatment, a strict antiphlogistic regimen must be observed.

Local Applications.

3433. Much serious mischief is oftentimes done, by ill-timed local applications. We can scarcely be too severe in our reprehensions of stimulating embrocations, liniments, and plasters, that are so frequently resorted to in acute rheumatism; they should one and all be proscribed as worse than useless. We know of but one application in this complaint, that is decidedly successful in abating pain, and from which no evil so far, has followed its employment—this is warm sweet oil. The affected

* R. Potassæ carbon.	gr. cvij.	Take Carbonate of	
Suc. citric, (recentis)	ʒij.	potash	108 grains.
Mist. camphoræ	ʒijss.	Fresh lemon	
Liquoris opii sedativ.	ʒiss. ad ʒij.	juice	2 ounces.
Syrupi tolutan.	ʒss.	Camphorated	
Antim. tartarisat.	gr. j. ad gr. ij.	mixture	3½ ounces.
M. fiat mistura.		Sedative liquor	
		of opium	1½ to 2 drachms.
		Syrup of tolu	½ ounce.
		Tartar emetic	1 to 2 grains.
		Mix.	

"Of this mixture, one, two, or three table-spoonfuls should first be taken, according to the degree of pain; and a dose should be repeated every hour or two, till relief is obtained."

part must be bathed, (not rubbed,) with it frequently if pain continue; and it is oftentimes truly surprising to see with what suddenness it affords relief.

3434. The following cases of benefit, from the local application of morphia, deserve attention, as they seem to point out an important and apparently a certain means of relief from local applications, after the system has been lowered by previous depletion.

3435. *Case I.*—"A woman, aged twenty-eight, had a smart attack of rheumatism in both knees, the shoulders, and wrists; the pains were very constant, and the affected parts were considerably swollen and red. She was freely bled from the arm, without relief—blood sisy. A blister on each was ordered, and the raw surfaces to be dressed with half a grain of the acetate of morphia; for the three subsequent days she was quite free from pain—the quantity of morphia increased to three-quarters of a grain. In two days more she had completely recovered."

3436. *Case II.*—"A man, aged twenty-seven, was seized with violent pains in both knees on the 15th of March. On the 22d, the joints were blistered, and a quarter of a grain of morphia was applied. In two days the pains were much relieved. On the 28th, he was pronounced cured."

3437. *Case III.*—"A young man, aged sixteen, suffered unremitting pains in the knees, wrists, and elbow-joints, which were swollen, red, and very tender on pressure, and incapable of being moved. For three nights he could not sleep from the severe suffering; pulse full, skin burning hot; he was bled and starved. Next day the pulse was more favourable, but the pain rather worse. A blister to be applied to each knee, and the surfaces to be dressed with a quarter of a grain of the acetate of morphia. This treatment was continued for four days, when the patient made no complaints but from the blistered surfaces."—*Med. Chirur. Rev. for Oct. 1832, from Jour. Univer. et Hebdom.*

3438. Another error is very often committed by local means—namely, keeping the part too warmly covered; flannel, and other woollen substances are made to surround the part, with a view it is said of producing perspiration. All such applications must be prohibited in acute rheumatism; as they only torment the patient by increasing the heat of the part, which should at most, be lightly covered; and when it is very hot it should be exposed to the air.

3439. We have seen however much relief from the application of carded wool, when all fever has been removed, but pain still remaining. Flakes of carded wool must be made to cover the afflicted part, and kept in their place by surrounding them

with the oiled silk, (like that used for hat covers,) and this secured by properly adjusted bandages. If this application act kindly, the covered portion will be excited to even profuse perspiration; but if this do not take place in half an hour, it will not succeed by giving it more time—in this case, it should be removed. But if on the contrary, perspiration ensue, much relief will be experienced, and the wool soon becomes saturated with moisture. When this happens, the wool must be changed, and its place supplied by a fresh application of it—it will therefore require two dressings of this article to be at hand. The wool that has been removed must be dried before the fire, and carded anew when it becomes matted.

3440. We never employ blisters in acute rheumatism; at least while the disease maintains its first position—if a new part be occupied by metastasis, we are sometimes under the necessity of using them, either to the part departed from, or to the new location. We have already remarked upon the disposition this disease occasionally has to shift its ground; and when this happens to some internal organ, it is almost always fatal. One of its most frequent seats when it makes this change, is the heart, and produces pericarditis, which see. Dr. David Piteairn, in 1788, agreeably to Dr. Wells, was the first to notice the connexion between the organic lesions of the heart and rheumatism; his observations have since been amply confirmed by a number of observers, and are now generally acknowledged—at least, that acute rheumatism and pericarditis have very frequently a common cause. Dr. Scudamore has selected a number of interesting cases, to which we refer; as also to Dr. Johnson's work on the Influence of the Atmosphere, &c.

Sub-acute or Chronic Rheumatism.

3441. Dr. Scudamore is of opinion, that a state "intermediate between acute and chronic rheumatism," is frequently met with. He says, "the essential character of sub-acute rheumatism is, that its attack is either partial, or so limited in degree, that the constitution is not affected with much sympathetic fever; and it frequently happens, that, notwithstanding there is great local suffering, no general fever is present. Either bursa, tendon, aponeurosis, ligament, or nerve, may be the texture affected, and we often find that one kind of texture only is the seat of the disease at the same time." p. 161.

3442. Notwithstanding the opinions of this highly valuable practitioner on the difference between sub-acute and chronic rheumatism, we cannot find it necessary or proper to make the distinction, especially as no practical good appears to be derived

from it. We think it a good rule to refuse distinctions that are not justified by pathological changes in the involved parts, or that do not require a difference of treatment; if we do, it is almost sure to confuse the young practitioner, and lead him to an uncertain and vacillating treatment. For these reasons, we would merge these names, and call the affection either sub-acute, or chronic—we, however, prefer the former, as it in some degree leads to the pathological condition of the disordered part.

3443. The sub-acute rheumatism, must be looked upon as a minor grade of the acute—in this state, (the sub-acute,) the system sympathizes feebly, or not at all with the affected part, be this bursa, tendon, ligament, aponeurosis, &c.; yet there exists inflammation, agreeably to Dr. Scudamore's own showing, in whatever part may have become the seat of the disease. For the only possible difference that we can perceive in these varieties, (for they are nothing more,) is the degree of inflammation; thus Dr. S. acknowledges, that as regards distinction "between the sub-acute and chronic, the limits are narrow; and in many instances, it would be difficult to determine which of these terms would be most descriptive of the diseased action." p. 337. Again, "by chronic rheumatism, I intend to designate that form of the disease which is wholly unattended by constitutional fever, and *scarcely marked* by any signs of local inflammatory action; for *in proportion to the existence of such signs, the term sub-acute would be the more appropriate appellation.*" p. 338.

3444. From this it is evident, that the sub-acute, and chronic rheumatism, are but one and the same affection; differing but in the degree of local inflammation; and that their treatment does not vary in any greater degree than as the treatment of one intermittent or a pleurisy may differ from another; and it is the *tact*, which experience, and well-disciplined observation gives, that makes one practitioner superior to another, by enabling him, *sur le champ*, to accommodate the nature and force of his remedies, to the state of the disease. One intermittent, or a pleurisy, may require twice as much bark, or depletion, as another; yet the variation in the mode of treatment, does not change the nature of the diseases.

3445. For these reasons we can only acknowledge, the acute, and the sub-acute, or the chronic, (if the *term* please better,) forms of rheumatism; for we must insist, that pain in a particular part, and this aggravated by motion, by changes of the weather, or other causes, must necessarily arise from inflammation of more or less activity; and that, until the part be freed from this inflammatory condition, it cannot recover. Besides, Dr. Scudamore admits, that chronic rheumatism appears as the original

form of the disease, in persons who have passed the middle period of life; and from hence we conclude, that though from the diminished sensibility of the tissues involved in this disease, they are less disposed to "inflammatory action," they are not exempt from it; for to what other cause shall we attribute the anatomical changes which take place sometimes in this disease, if they be not produced by inflammation; of this kind, both Dr. Scudamore and Morgagni furnish several details, as happening to the parts occupied by this "sub-acute or chronic inflammation"—we know of no other cause capable of such effects. We think then we have every right to conclude, that sub-acute, (or chronic,) rheumatism, consists of a low inflammation of the serous, or white vessels, of the bursæ, tendons, &c. &c.

Treatment.

3446. From the peculiar grade of inflammation, which constitutes the sub-acute rheumatism, it very seldom happens that a vigorous treatment is necessary, or even proper—yet cases do occur, in which it becomes essential to the cure, that active means should be used. The rule which we have laid down upon several occasions, namely, that the name of the disease is of no moment; that it furnishes no absolute indication; and consequently is not to govern our therapeutical views, should constantly be kept in sight in the treatment of this affection. The state of the system must always be first attended to—we must determine the grade or quality of the pulse; ascertain the condition of every other portion of the system; especially, the state of the skin, the bowels, the biliary secretion, and the several viscera of the body, before we make up our plan of treatment. For notwithstanding the rheumatic inflammation has not called the circulatory system into sympathy, there may be other causes that have—therefore, were we to disregard this condition of the arteries, however unconnected it may be with the affection we are about to prescribe for, we should not only fail to cure the rheumatism, but should run the risk of doing serious mischief to other portions of the system, as certainly as if the excitement was produced by the rheumatic inflammation.

3447. It will therefore follow, though general bleeding may very seldom be required in sub-acute rheumatism, yet it may occasionally be absolutely necessary to the cure; not perhaps because we think it will directly abate the local inflammation, but because it is essential to the cure, that the too vigorous condition of the pulse be abated, that other remedies may be safely and efficiently employed. Therefore, whenever the state of the system is such, that it cannot bear stimulating remedies, with-

out rousing too much excitement, they should never be used, however beneficial they might have been, had this condition not been present; and it is to this want of attention to the state of the system, that we may mainly ascribe the failures in the treatment of chronic diseases. For it should constantly be borne in mind, that this form of rheumatism, especially in people advanced in life, who have been free livers, or have been much exposed to changes of climate; will often be complicated with affections of some one of the viscera, or other structures of the body, which will alter the usual indications for rheumatism. Thus, the liver, the spleen, the kidneys, the lungs, may be diseased; which will give a new complexion to this complaint. Or there may be mental excitement, or great nervous irritability; there may be local inflammation, as ophthalmia, or glandular derangement, as scrofula, &c. In all such instances, care should be taken to ascertain the influence of either of these conditions upon the circulating system, before the prescription is made for the sub-acute rheumatism, if we hope to be successful in the treatment. In Dr. Scudamore's work upon rheumatism, there are a number of valuable cases illustrative of this point, and to which we refer the reader.

Cupping and Leeching.

3448. Of these remedies, we have already spoken at par. 3410 to 3422. We may only observe in addition, that we have found great benefit from them, where there was no great evidence of "increased vascular action," except what might be inferred from the intensity of pain, and the inability to suffer the motion of the part. In very obstinate, or rather in very long standing cases, where the location of the disease is limited to a small extent, and the suffering great, we never fail to employ one of these remedies, and we think always with advantage, especially if the part can be easily covered by the carded wool, a few hours after the operation.

Local Applications.

3449. There are very many substances highly extolled for their virtue when applied to the pained part in this complaint—we have very little confidence, however, in any of them, except as mere temporary applications; their effects are too evanescent for permanent benefit, and too uncertain for the most part, for temporary relief. The best, we believe, are the rubefacients; and the best of these, perhaps, are the spirit of turpentine, mustard, and Cayenne pepper. We have, however, found the most

prompt and decided advantage, from a liniment composed of equal parts of sweet oil, laudanum, and vitriolic æther, when the pain fixes itself in the muscular tissues—the part is to be bathed with it every hour or two, until it procure relief; and it is astonishing sometimes to see, with what speed it removes those sudden and painful attacks, that follow exposure to cold. Blistering has rarely been successful in this form of rheumatism, unless repeated perhaps several times. Dr. Scudamore recommends, “as a soothing plaster, equal parts of the emplastrum opii and ceratum saponis; and if the pain be severe, we may resort to the higher power of belladonna, and in the same way.” p. 374.

3450. Of the various baths recommended, as the warm, vapour, and sulphureous, we can say nothing positive, evidence being so contradictory upon this point, as to leave their powers altogether undecided—every practitioner must judge for himself upon this point of practice.

3451. A number of other remedies are recommended for the sub-acute rheumatism, as mercury, sarsaparilla, guaiacum, arsenic, nitre, bark, sulphur, and colchicum. Of mercury we can say very little in its favour, unless the disease has had a venereal origin; and even then it has not proved successful but in combination with either sarsaparilla or guaiacum, or both. The sarsaparilla has occasionally been highly useful, in the recent, sub-acute rheumatism, especially when this has been the secondary form; that is, where the acute has terminated in this way. The compound syrup of this root, as prepared by Carpenter and Marshall, is not only a very convenient, but a very efficacious form of this medicine; and when combined with an eighth of a grain of the corrosive sublimate, its virtues become very much exalted.* The guaiacum,† in form of the volatile tincture, is much and de-

* When the sarsaparilla is not used in the forms recommended in the text, an ounce to an ounce and an half should be used daily. The form of decoction is the best—an ounce sliced or bruised, with half an ounce of liquorice-root bruised, should be simmered in three half pints of water down to a pint—when cool, strain it—a wine-glassful every two hours.

† The tincture we employ is a little different from the officinal preparation; we will therefore subjoin the formula.

R. Pulv. gum guaiac.	-	℥iv.	Take Powdered gum guaiac-	
Pulv. pimento	-	℥j.	cum	4 ounces.
Carbon. sodæ	-	℥ij.	Powdered allspice	1 ounce.
Sp. vin. ten.	-	℔j.	Soda	2 drachms.
	Dig.		Proof spirit	1 pound.
				Digest for several days.

When about to be used, add the volatile spirit of ammonia in the proportion of two drachms to six ounces of the tincture—from one to three tea-spoonfuls three or four times a day in sweetened milk, or Sherry wine.

servedly esteemed in this complaint, when given in sufficient doses, persevered in duly, and when there is not the slightest preternatural excitement in the arterial system. Arsenic, in the form of Fowler's solution, in six or eight drop doses, three or four times a day, has been found highly serviceable sometimes—we think, however, that it is most useful when the disease seems to obey a periodical movement. Nitre has also been highly extolled in acute rheumatism; especially by Dr. Brocklesby, who gave it in fearful doses in this disease.* Of its utility in very large doses in the acute or active stage, we can say nothing from our own experience, though we have employed it frequently and pretty largely in the sub-acute, and particularly where it has seized upon the large joints. In some instances it has afforded entire relief, after many other remedies had been employed unsuccessfully; and we think it will rarely fail to afford relief should it fail to effect a cure. It is most successful in young and middle-aged subjects. Bark we have never derived the slightest advantage from. Sulphur, in small doses, and persevered in, has been found occasionally highly serviceable in long protracted cases.† Colchicum has been alternately lauded and condemned in this disease; our own experience declares in favour of it, especially in the commencement of the sub-acute, and in the subdued acute forms, and in females. Thirty to forty drops of the vinous tincture of the seeds should be given every four hours—it may be continued with advantage for some time, provided it does not sicken or purge too much.‡

* We use nitre in the following manner:—

R. Sal. nitre	-	-	-	℥j.	Take Saltpetre	-	-	1 ounce.
Sp. vin. camph.	-	-	-	℥j.	Camphorated spirit	-	-	1 ounce.
Aq. font.	-	-	-	℥iiss.	Water	-	-	1½ pound.
			f. sol.					Dissolve.

Of this, a wine-glassful is to be taken three or four times a day—if it disagree with the stomach, let the quantity be reduced—and let the first dose be taken an hour after breakfast.

† The milk of sulphur is to be mixed in syrup of any kind—a tea-spoonful of the mixture to be taken morning, noon, and evening; if it purge too much, diminish the dose; increase, if too little.

‡ A curious fact from the use of colchicum is said to have developed itself in the practice of Dr. Buckner, namely, its power over the salivary glands. Dr. B. relates a case in which it produced a very profuse salivation—"the discharge was so copious, that the patient was convinced he had 'spit half a gallon' in less than twenty-four hours." We have never witnessed this effect ourselves, though we have given this medicine in pretty full doses, and continued them for some time.

CHAPTER XVI.

GOUT.

3452. IN treating of this disease we shall confine ourselves very much to practical considerations; leaving the speculative parts to the management to those, who treat professedly of it.

3453. This disease has received its name from a hypothetical view of its cause; namely, a distillation, or afflux, guttatum, of a particular humour, in the part affected; which is worthy, Guilbert says, of the barbarous age in which it originated. The Greeks called it arthritis, because it is wont to attack the joints; while Dr. Cullen named it podagra, because he thought the seat of regular, or idiopathic gout, was in the foot.

3454. This disease has been divided into four species:—1. *Podagra regularis*, or regular gout. 2. *Podagra atonica*, or atonic gout. 3. *Podagra retrograda*, or retrocedent gout. 4. *Podagra abberans*, or wandering gout.

1. *Regular Gout.*

3455. In this form the inflammation attacks the joint most commonly of the great toe; is of sufficient intensity, or vividness; and after having continued a certain time, (about two weeks,) gradually disappears; the patient recovering his usual health, or fancies it even improved. It is generally agreed, that Sydenham's description of this complaint is so complete in all its parts, as to leave nothing to be desired on this head; he himself having been subject to it four-and-thirty years.

3456. He says, "*the regular gout generally* seizes in the following manner; it comes on a sudden towards the close of January, or the beginning of February, giving scarce any sign of its approach, except that the patient has been afflicted, for some weeks before, with a bad digestion, crudities of the stomach, and much flatulency and heaviness, that gradually increase till the fit begins; which is preceded for a few days by a numbness of the thighs, and a sort of descent of flatulencies through the fleshy parts thereof, along with convulsive motions; and the day preceding the fit the appetite is sharp, but preternatural. The patient goes to bed, and sleeps quietly until about two in the morning, when he is awakened by a pain, which usually seizes the big toe, but sometimes the heel, the calf of the leg, or the ankle. The pain resembles that of a broken bone, and is attended with a sensation, as if water just warm was poured upon

the membranes of the part affected; and these symptoms are immediately succeeded by a chilliness, shivering, and a slight fever. The chilliness and shivering abate in proportion as the pain increases, which is mild in the beginning, but gradually more violent every hour, and comes to its height towards evening, adapting itself to the numerous bones of the *tarsus* and *metatarsus*, the ligaments whereof it affects; sometimes resembling a tension or laceration of those ligaments, sometimes the gnawing of a dog, and sometimes a weight and coarctation, or contraction of the membranes of the parts affected, which become so exquisitely painful, as not to endure the weight of the clothes, nor the shaking of the room from a person's walking briskly therein. And hence the night is not only passed in pain, but likewise with a restless removal of the part affected from one place to another, and a continual change of its posture. Nor does the perpetual restlessness of the whole body, which always accompanies the fit, and especially in the beginning, fall short of the agitation and pain of the gouty limb. Hence numberless fruitless endeavours are used to ease the pain by continually changing the situation of the body, and the part affected, which, notwithstanding, abates not till two or three in the morning, that is, till after twenty-four hours from the first attack of the fit; when the patient is suddenly relieved."

3457. "And being now in a breathing sweat, he falls asleep, and upon waking finds the pain much abated, and the part affected to be then swelled, whereas before, only a remarkable swelling of the veins thereof appeared, as is usual in all *gouty fits*." After this he observes, that the other foot becomes affected, which relieves the first, provided there be much pain in the second foot; and what is usually termed a *fit of the gout* is made up of a number of these small fits. The common period of a fit in healthy constitutions is about fourteen days.

3458. During this period the urine is scanty, and high-coloured; depositing "a kind of red, gravelly sediment." Loss of appetite, chilliness towards evening, and a general uneasiness attends the whole fit. When the fit is about to terminate, a violent itching seizes the foot, especially between the toes, and the skin desquamates. The fit over, the appetite and strength sooner or later return, as the fit may have been more or less severe; and the next fit may be sooner or later in its recurrence; "for if the last fit proves very violent, the next will not attack the patient till the same season of the year returns again."

3459. This is the history of a fit of regular gout; but its course and symptoms may be changed by bad management, or by its long continuance, and then becomes the atonic gout of Dr. Cullen.

2. *Atonic Gout.*

3460. This is attended with atony of the stomach, or some other internal part. The accustomed inflammation of the joints may not take place; or take place very transiently; or become fugitive, alternating with indigestion, or other marks of atony. When this takes place it forms the

3. *Retrograde, or Retrocedent Gout,*

3461. Of the same author. This may have been attended with the usual inflammation of the joints, but not in its usual degree, or with usual pain; but this suddenly abates, while some internal part becomes the seat of the affection. And when the gouty diathesis produces inflammation in some internal part, it constitutes the third variety, or the

4. *Misplaced Gout.*

3462. In this variety, the articular inflammation and pain are absent; and evidences of this affection are exhibited, in other portions of the body.

3463. It is not an absolute security against the other forms of gout, that this has observed a regular shape previously, as many causes seem capable of producing the aberrations above named; as the powerful operation of the predisposing causes, which may be any thing capable of producing debility; irregularities in diet; indulgence in acescent drinks and food; passions or emotions of the mind; improper treatment; &c. But for the most part in good constitutions, the gout observes a periodicity; which however may differ in different individuals; some will not have a return of it but at the intervals of years; others more frequently, and some very often.

3464. As age advances, and as the paroxysms may have been more or less severe, or more or less frequently repeated, will be the reduction of strength, and the alteration of the natural and healthy functions. The stomach and the extremities seem principally to suffer; the first by indigestion, and the latter by stiffness, and chalk stones,* which sometimes ulcerate the skin which covers them.

* These articular products have been examined by Vauquelin; they are found to consist principally, 1st, of the urate of soda; 2d, a small quantity of the urate of lime; 3d, the phosphate of lime; 4th, a fibrous animal matter.

Proximate Cause.

3465. Of the proximate cause of gout, many opinions have been formed; some sufficiently probable, others absurd, and all possibly wide of the truth. We shall not enter therefore into their enumeration, as none have appeared satisfactory to us. One circumstance however we think we may insist upon; namely, that the inflammation accompanying gout, (whether it consist of this or not, we cannot say,) is peculiar, or *sui generis*; this, the whole phenomena of the disease seems to prove, such as the production of chalk stones, the peculiar pain, its duration, and its sudden disappearance, as well as its translation to other parts, &c.

Diagnosis.

3466. Gout cannot be well confounded with any other disease than rheumatism; we have, in treating of this latter disease, run a parallel between them. And in addition to the diagnoses there laid down, we may add the following: 1. Gout is evidently, in many instances, hereditary* and constitutional; rheumatism is never hereditary, though it may be constitutional. 2. Gout is excited many times without any evident cause; rheumatism requires the application of cold, or some other agent. 3. Gout is, (perhaps,) invariably preceded by forewarnings, that decidedly herald the attack, such as flatulency, languor, indigestion; rheumatism has no such premonitions. 4. Gout generally attacks the smaller joints; rheumatism usually assails the larger. 5. Gout is always attended by a peculiar shining redness; rheumatism is not, or but rarely, and then it is much more diffused. 6. Gout very frequently produces chalk stones; rheumatism, strictly so called, perhaps never.

Predisposing Causes.

3467. The imputed predisposing causes are numerous, but all of them are not well ascertained. Excesses of every kind, in eating and drinking, idleness, or deficient exercise, particular drinks, as the thin acid wines, lemonade or punch habitually indulged in, cider and beer, &c. &c.

* Dr. Scudamore's inquiry into the hereditary nature of gout, renders it probable, that it is not perpetuated so frequently by this cause as has generally been imagined, as the cases from an hereditary cause exceed the acquired by only one-third; yet it may be said with the strictest propriety to be hereditary in many instances.

Exciting Causes.

3468. Gout very often shows itself without any apparent exciting cause; this may especially happen at the periods at which it is wont to return, from some inscrutable law of the system as regards this disease; but it may be provoked to return at unaccustomed times, by long watching, long fasting, excessive fatigue, grief, passions or emotions of the mind, especially anger and grief. It may also be provoked by mechanical causes, as sprains, and pressure from tight shoes or boots. We once knew a severe attack produced in a gentleman, by jumping from his carriage instead of descending by the steps.

Prognosis.

3469. Of the prognosis of gout little need be said, as it is seldom or never dangerous, when its attack is regular, and maintains its position in the extremities. But as constitutional disturbance is almost always excited, it may chance to be rather excessive, and the degree of fever may become a cause of alarm. If this happen, the prognosis will almost be the prognosis of fever; therefore, when this befalls a good constitution, if there be a clean tongue after it has been otherwise, a return of appetite, evacuations natural, the skin soft, the urine throwing down a laiteritious sediment, a subsidence of arterial and nervous irritation, a diminution of the local inflammation and swelling, we may look upon the case as about to terminate, and that favourably.

3470. The unfavourable signs are, unusual disturbance of the alimentary canal, a feeble or exhausted constitution or system, fluctuation in the pained parts, disposition to metastasis, inquietude of mind, &c.

Pathological Changes.

3471. The most remarkable pathological derangements in the parts affected by gout, are anchyloses of the smaller joints; thickenings of the various fibrous structures surrounding them; depositions of chalky concretions; and occasionally, the same kind of product is discovered in the bladder.

Treatment.

3472. We scarcely dare to talk of the cure of gout, whether it be hereditary or acquired. The most we can aspire to, is to diminish the intensity of suffering by proper means during the

paroxysm, and perhaps to mitigate the violence or abridge the duration of subsequent attacks.

Purging.

3473. During the paroxysm, "patience and flannel" are generally recommended as the only resources; but experience amply proves the value of other means during this period. Among these, purging appears the most useful, though so formally prohibited by Sydenham. When this is determined on, a few grains of calomel should be given, followed in two or three hours by two or three tea-spoonfuls of magnesia, provided the calomel has not operated previously; and the further use of cathartic medicine should be recurred to, if the pain and febrile irritation continue. We are aware that this plan has been objected to as injurious; because, it is declared, that gout is an effort to expel something morbid, and therefore should not be meddled with. Upon this point much remains to be proved; and it is rarely safe to rely upon theory, when experience is in opposition to it. It must however be borne in mind that purging is only recommended during the intensity of the paroxysm, for upon its decline we do not think it so useful; not because we fear a recal of the disease,* but because it does not appear to hasten convalescence, if the bowels have been amply emptied by previous purging. And in this respect, gout appears but to follow the course of every other acute disease. Besides, it is well known that a paroxysm of gout is much relieved, or is found not unfrequently to terminate, by some of the affections of the bowels, as cholera or diarrhœa; and that constipation is sure to aggravate as well as prolong the fit. For this practice, the authority of Hippocrates, Musgrave, Cheyne, Scudamore, and others might be cited; but perhaps the effects of the "Eau Medicinale," colchicum, hermodactyle, &c. the powers of which to relieve this disease have long been acknowledged, may be looked upon as additional evidence of the good effects of purging during the fit of gout.

3474. Dr. Scudamore speaks favourably of a similar composition to that recommended for rheumatism, (par. 3425.) If this have any advantage over the cathartics in common use, it must, we presume, depend upon the colchicum that enters into its composition; and we are disposed to believe, that it is a useful addition, especially in the commencement of the paroxysm, as the efficacy of this medicine in checking gout, when given in the commencement of the fit, seems to be generally admitted.

* Dr. Heberden is of opinion, however, that a purge given at the close of a fit of gout, will recal it.—*Commentaries*, p. 37.

Emetics.

3475. Emetics have also been employed for the relief of gouty paroxysms—of their efficacy, we can say nothing from our own observation. The usefulness of emetics in gout is by no means as well established as that of cathartics, though formerly they were in considerable use. We are of opinion, however, they can only be distinctly useful where gastric embarrassment may exist—when this is evident, a few grains of ipecacuanha may be given, perhaps with advantage. Rush, Scudamore, and Small, are among those who have recommended them, in modern times.

Bleeding.

3476. Let our pathological views of gout be what they may, one thing will be acknowledged by all, that it presents much variety in different constitutions, age, sex, season of the year, location, &c. and consequently remedies must be suited to the particular state of the system. In every other disease, the state or force of the arterial system must constantly be kept in view, if we hope to prescribe with advantage to our patient—the same observance is not less necessary in gout; for in this country, this disease often requires depletion from the blood-vessels. This may be done from the arm, in cases of high excitement,* and from near the part, when the disease attacks the larger joints and the local inflammation is very considerable. We once witnessed an instance of this kind, in a plethoric, active young man, who had unexpectedly brought on a fit of the gout, from over-exercise in shooting. It attacked the ankle-joint, from which the inflammation spread nearly to the toes and half way of the calf of the leg; the pain was exquisite; so much so as to deprive him of all power to move the limb, and to rob him of all rest. Forty leeches were placed on the outer margin of the redness, with marked advantage and relief; after this, the fit ran its usual course without more than ordinary trouble.

3477. In recommending the abstraction of blood in gout, we do not offer it as a constant remedy in this disease; we only insist that where inflammatory action runs high, this mode of de-

* Dr. Rush informs us, that in one case, he took away sixty ounces of blood; and in another thirty ounces, (Works, Vol. II. p. 257.) Dr. Rush says that bleeding in gout, lessens pain; prevents congestions, and exhaustion, and shortens the duration of the fit, (Ibid.) Dr. Heberden says, "one person was bled, by his own direction, in every fit of the gout for six-and-thirty years; and bleeding was a frequent practice with another in the agony of the paroxysm, which it always abated so as to bring on a sound and refreshing sleep without any manifest ill effect."—*Commentaries*, p. 45.

pletion is as proper in gout, as in any other affection. There are cases doubtless in which this operation is not required; and others in which it might be hurtful; but this is precisely the case with almost every other disease. Hitherto, we have seen nothing in this disease, that forbids it to be treated upon general principles, unless perhaps it be the employment of cold to the part, as recommended by Kinlake. We once knew a permanent affection of the stomach produced in a first attack, by evaporating from the pained part, vitriolic ether—it very quickly relieved the gouty symptoms, but this was followed by severe colics, which continued to return occasionally for years—the gout never returned to the ankle again.

Opium.

3478. We believe the practice of administering opium in any form in gout, is now very much abandoned, as the principle which should regulate its use, is better understood. It is natural to seek relief, under such intense suffering as a paroxysm of gout produces; and nothing in speculation bids fairer to afford this, than opium; but unfortunately for the afflicted, this expectation is not found to be realized by experience at the wished-for moment, nor in the hoped-for degree. But this failure, in many instances at least, has arisen from the proper condition of the system not being selected for its exhibition, rather than from any pathological incompatibility; for we are certain there is a period in the fit, that this medicine proves kind, especially when combined with the colchicum—and this period is, when the inflammatory action is well subdued, and not before. We are in the habit of giving at bed-time, and occasionally at other times, if pain require it, the following draught, with much advantage.

R. Tinct. opii acet.	gut. xx.	Take Acetated tincture of
Tinct. vin. & sem.colch.	gut. xl.	opium or black drop 20 drops.
Sacch. alb.	3ss.	Vinous tincture of
Aq. font.	3j.	colchicum seeds 40 drops.*
M.		White sugar - ½ drachm.
		Water - 1 ounce.
		Mix.

3479. Of the other narcotics recommended by several of the

* A preference has lately been given to this preparation of the colchicum, and perhaps justly—it appears, at least, to be more mild in its operation, than the infusion of this root, and is equally efficacious in warding off, or removing a gouty paroxysm. This perhaps may be owing to a smaller quantity of the extractive matter, being present in the vinous tincture of the seeds, than in the infusion of the root; for if we can rely upon the experiments of Sir E. Home, it was constantly found that, a dose of the infusion containing the deposit had a more powerful operation upon the system; especially the bowels, than when it was exhibited without it.

British writers, as the cicuta, hyoscyamus, stramonium, belladonna, &c. we can say nothing in this disease; for upon other occasions, they have never failed to disappoint the hope, that they might possess an advantage over opium.

Sudorifics.

3480. We have never found sudorifics answer any valuable purpose in gout, and therefore never specifically prescribe them—indeed, we have thought they have rather exposed the patient to inconvenience, than to have afforded him relief; though we confess we have seen ten grains of Dover's powder act very kindly, when a dryness of skin, and watchfulness rather than severe pain, has kept the patient awake. In a word, sudorifics do not appear to be more efficacious in their operation in gout than they are found to be in rheumatism.

Diuretics.

3481. A fit of gout has many times terminated by a copious discharge of urine; it has therefore been supposed, that this class of medicines must be useful in this complaint. However natural the suggestion, diuretics have as far as we have observed, but a limited influence upon the active part of a paroxysm of gout, though we have never witnessed any unfriendly consequences to arise from their exhibition. The mode by which this disease finishes its career, or rather the evidence that it almost always presents us, that it has done so, (namely, the urine throwing down the lateritious, or brick-dust sediment,) would seem to encourage a belief, that diuretics are necessary in this complaint. But it should be remembered, that we can neither force nor solicit the kidneys by diuretics to imitate this apparently critical peculiarity in the urine, however desirable this might be—for it is an inimitable process of nature.

3482. As a general rule, we are therefore of opinion, that the only really valuable and certain diuretics, are such remedies as will most certainly abate the violence of the inflammatory action of the system; and these are found to be purging, and occasionally blood-letting. For when the febrile tumult is calmed, pain abates; and the urine shows, that the gouty excitement, is about to relent; but a mere increase of this fluid, proves no such crisis to be at hand, be its quantity ever so abundant.

General Remedies.

3483. But nothing perhaps proves the want of general suc-

cess in the regular treatment of gout, more than the almost universal search for a prompt, or rather a specific remedy for its relief. Many have been the nostrums, purporting to be infallible cures; but like almost all the remedies of this class, they have proved *infallible in every case, except the individual one, in which their power is put to the test.* We must not, however, resist the evidence in favour of the "Eau Medicinale," though we have never ourselves prescribed it; its celebrity throughout Europe in this case, forbids entire scepticism. In this country, its employment hitherto has been limited; nor are we exactly in possession of the opinions of the physicians of America, respecting its powers; yet sufficient is known, to excite an anxiety, to become acquainted with its composition. Many conjectures have been made upon this point—but none, we believe, on which reliance should be absolutely placed. It has been said to consist of the nicotiana, gratiola, veratrum, elaterium, colchicum, &c. &c.

3484. This medicine acts with great promptitude we believe, always; and sometimes, with unprofitable violence. It purges with great activity; vomits violently; sweats profusely; or runs off by urine, copiously, and this followed, by a great loss of muscular power. But during this varied, and severe discipline, it is said, the pain abates, and the swelling of the joint subsides with such rapidity, as to leave the patient perfectly relieved. But notwithstanding this favourable report, we find many, who declare it to be useless, and others that it is dangerous.

3485. My friend Dr. Chapman is almost the only practitioner in this city, who has experience in the use of the "Eau Medicinale." He informs us he has tried it "in five or six cases of gout of different forms, with almost constant success." In a paroxysm of podagra in which he used it, he says, long before nausea or purging commenced, "there was a marked mitigation of pain, and a corresponding degree of composure, resembling very nearly, the state induced by an anodyne."*

3486. Dr. Chapman adds, "whether the repeated use of this medicine has any tendency to impair the tone of the system, and thereby aggravate the mischief it is intended to remove, I have not sufficient experience to decide." He however knew one instance in which it had been used occasionally for many years, in which vigorous health was preserved.†

3487. Analogy of effects, has led to a belief, that colchicum is the basis of the "Eau Medicinale;"‡ whether this is so or not,

* MS. Lectures.

† Ibid.

‡ The experiments of Sir E. Home, would lead us very strongly to the belief that they are identical. The effects of deleterious doses of the two substances were precisely the same, as far as could be determined either by the

remains to be determined; it certainly appears to manifest considerable controul over the gouty paroxysm, and by a similar three-fold operation; namely, cathartic, diuretic, and sometimes emetic effect. Dr. Scudamore extols the following draught:—

R. Magnesia,	gr. xv. vel xx.	Take Magnesia,	from 15 to 20 grs.
Sulph. magnes. }	} aa. ʒj. ad ʒij.	Epsom salt	} each from 1 to 2
Acet. Colch.		Vinegar of col-	
Aq. font. q. s. f. haust.		chicum	
		Water, sufficient to make into a draught.	

This may be repeated several times a day if necessary.

Local Applications.

3488. Many local remedies have been proposed for the relief of a gouty paroxysm; but none we believe is yet discovered, that is both effectual and safe. Our own confidence in them for this reason, is extremely limited; there are but two, so far as we have witnessed, that are both innocent and effectual; but the latter advantage it must be confessed, is not constant. We mean local bleeding as directed above, and warm sweet oil. From both these, we have witnessed occasionally the kindest effects; and without the slightest risk.

3489. Blisters disappoint; vapour and tepid water are uncertain; evaporating lotions are sometimes mischievous, (see par. 3477;) escharotics painful, without corresponding utility; and

constitutional symptoms during the lives of the animals, or the appearances after death.—*Philosoph. Magaz. for Dec. 1817.*

A remarkable effect of the colchicum, is related by Dr. Kuhn, in the *Revue Médicale* for July 1830. "One of the most remarkable effects of the colchicum upon the urinary secretion of persons affected with arthritis or gout, is that which was observed by M. Chelius, and recorded in the *Annales Cliniques* of Heidelberg, Vol. III. p. 345. The Professor of Heidelberg has found, that while patients with this complaint made use of colchicum, their urine undergoes changes which consist in a striking increase of the proportion of uric acid. The following are the results of the examination of the urine of a patient affected with gouty swellings in several of his joints, especially in his knees, so that he was wholly unable to move. Before the employment of the colchicum, the uric acid contained in his urine, as well in the free state as combined with ammonia, was 0.069; on the fourth day of the employment of the medicine, it was 0.076; on the eighth day 0.091; and on the twelfth, 0.112; so that the amount of the acid was almost doubled in a period of twelve days." Similar results were obtained by M. Chelius, in many cases of the same nature, in which the urine was analyzed. "These results are very important, as they enable us to understand how colchicum produces so many wonderful cures of gout; is it not in fact, by eliminating from the animal œconomy, the excess of uric acid, which in this complaint, forms the chalky concretions of the joints. I well remember having heard Mr. Lobstein say, long before the publication of the fact observed by M. Chelius, that he had succeeded in dissipating, by the aid of colchicum, arthritic concretions, which had resulted from inveterate rheumatism."—*North Amer. Med. and Surg. Journ. for Jan. 1831, p. 234.*

cold water now and then hazardous, notwithstanding the high encomiums, and ingenious reasoning of Dr. Kinlake to the contrary. Dr. Heberden says, that "the great Dr. Harvey, as I have been told by some of his relations, upon the first approach of gouty pains in the foot, would instantly put them off by plunging the leg into a pail of cold water." He, however, adds, "I do not recommend Dr. Harvey's example as proper to be imitated, though it is known he lived to a good old age."* This practice is as old, even as Hippocrates, in one form or other. We confess we have never had resolution to recommend this course to any of our patients; not from simply reasoning upon this subject, for this should never be put in direct opposition to experience; but because experience has unquestionably furnished a number of disastrous cases, where trial was made of this remedy. This practice was much canvassed in the London Medical and Physical Journal; to which we would more particularly refer, were the work at hand, to enable us to do so.

3490. When the paroxysm is about to decline, we have seen much comfort derived from the carded wool, and oil silk, as recommended for rheumatism. (See par. 3439.)

Regimen during the Fit.

3491. From what has been said on the general nature of gout, it may at once be inferred, that an antiphlogistic regimen should be strictly observed throughout the whole course of the disease. We are aware, that the contrary plan is recommended by some, and followed by many; we have no right, nor do we pretend to interfere with these predilections, as the penalties attached to such choice, are all their own. We mean only to caution the young practitioner against the influence of authority, and the seduction of example, when they are opposed by reason, and well-directed observation. Besides a regimen strictly antiphlogistic, the patient should observe rest of body, and court tranquillity of mind—shun all irritation, and invite quietude, and abstraction, both physical, and moral, though Dr. Heberden says, "I have known several, who instead of nursing a beginning gout with warmth, and repose, have used the utmost resolution and exertion in moving and exercising the limb, which they found themselves gradually able to do more and more, till at last they recovered its perfect use, free from any feelings of pain, and without any manifest ill consequences."† These facts, however, are to be received, for no more than they are worth; for they only prove, that there is different degrees of this disease;

* Commentaries, p. 49.

† Idem.

and one, so slight, as to be overcome, by moral courage, and physical exertion.

3492. But let us not be understood as recommending "flannel," because we apprehend, that mischief may arise from "cold water." Hitherto we have never had good reason to believe that the slightest advantage could arise from keeping the parts hot. We perfectly acknowledge the truth of the judicious Heberden's observation upon this point. "Those who choose to invite the stay of the gout, and are afraid of disturbing its repose by any motions of the affected limbs, often add very unnecessarily to the difficulty of moving them, by the quantity of flannel in which they are wrapped up, even in the hottest weather. I never could see any reason for adding at all to the usual covering of the limb, unless its extraordinary tenderness, or the severity of the weather, might make a very little more necessary to keep off the sensation of cold, so disagreeable to a part which is swelled and in pain." p. 50.

Atonic Gout.

3493. We have already partially defined the atonic gout, (see par. 3460,) to which we shall now add, that in constitutions liable to this form, that it never regularly, or but very rarely, shows itself to be a local affection of the extremities, like the regular gout. It may, however, at some one period, have shown a disposition to regularity; but either a feebleness of constitution, or some improper treatment, may have alienated it from its legitimate location. In consequence of this, it forsakes its inflammatory form, and assumes various ill-defined, but still cognizable shapes.

3494. The stomach is the part, that most frequently suffers from this form of disease; this declares itself by the loss of appetite, indigestion, nausea, vomiting, acrid and sour eructations, heartburn, pain, spasms, flatulency, &c. To these, or to some of them, costiveness, diarrhœa, tormina, and windy stools, may be added; and not unfrequently, great lowness of spirits, or an anxious watching of every rising sensation, with the most gloomy forebodings; palpitation of the heart, especially after eating, &c.

3495. Or its seat may be the brain; then there may be headache; tic douloureux; vertigo; apoplexy; palsy. In a word, it may affect any of the viscera; each of which will discover characteristic symptoms, when under the influence of this morbid diathesis.

3496. For the most part, however, we have to contend with gastric affections; the nature of these are so various, and so multiplied, that no regular history can be given of them, nor any

especial plan of cure laid down. The principal indications however, are to restore the impaired tone of the stomach; and to counteract unpleasant symptoms, as they arise.

3497. The first is attempted to be answered by tonics, both vegetable and mineral; of the first, the bitters stand foremost. This class of tonics are, however, not altogether without their disadvantages; for they become injurious, when too long persisted in, in whatever degree their selection may be varied. Gentian, chamomile, quassia, columbo root, &c. have each been found useful for a period, after which they either cease to make a favourable impression, or become, from their stimulant quality, hurtful. The mineral tonics are less exceptionable, and perhaps more efficacious; besides, having less injury to follow a long perseverance in their use. The various preparations of iron are the best; and especially when occasionally combined with ginger.

3498. The occasional distressing symptoms above enumerated, are to be met by their appropriate remedies; but as they almost always arise from a redundancy of acid, and this generated, or if not generated, at least increased, by errors in diet, the most scrupulous care should be taken to guard against such mischievous aberrations.

3499. To relieve the acid condition of the stomach, and by this means abate, (at least in most instances,) the severity of sickness, heartburn, flatulency, colicky pains, &c. the antacids should be employed, *pro re nata*. Sometimes magnesia or magnesia and rhubarb are the most eligible; this obtains where costiveness exists; at others, the vegetable alkalies, or the carbonate of ammonia will be best—the former where no lowness of spirits attend, and the latter, when this prevails. But for constant use, the “alkaline solution, from wood ashes,”* appears to answer best; but for this to be useful, it must be persisted in for some time, aided by a well-regulated diet.

3500. Of the diet of such patients, it is difficult to speak with precision, or minute detail; for much must be left to the habits and condition of the patient. As a general rule, it should consist chiefly of the animal foods found most easy of solution; as beef, mutton, venison, rabbits, turkeys, chickens, partridges, pheasants, oysters, and soft-boiled eggs. All acescent substances

* This solution is made by burning upon a clean hearth, young, green hickory wood. When reduced to ashes, a vessel of any size is to be two-thirds filled, if the hot embers be used, (which is best,) if the cold, half filled; as much boiling water is to be poured upon the ashes as will fill the vessel, adding previously a large table-spoonful of clean soot, to every quart of the water. This must be stirred by a piece of wood, several times a day, for four or five days, and then permitted to settle. Of the clear *lixivium*, from a wine-glassful to a gill must be taken half an hour after each meal, or at any other period, at which acidity is troublesome.

should be carefully avoided, especially vinegar, lemonade, wine, cider, beer, &c. Supper of no kind should ever be indulged in; and the best drink is plain water, or very weak brandy and water, if water alone be found to disagree. But notwithstanding every attempt to define rules, much must be left to the idiosyncrasies of patients.

3501. The body should be carefully and warmly clad; especially the feet and legs—all exposures to cold, wet, or damps, should be diligently shunned.

Retrocedent Gout.

3502. We have said, (par. 3461,) that this form of gout may have been preceded by inflammation of the joints; but not in the usual degree, or with the usual pain; but that this suddenly abates, while some internal part becomes the seat of the affection.

3503. When gout shifts its ground, we cannot determine, *a priori*, where or on what part it may fix itself, as no viscera is secure from its visitations. The stomach, as in atonic gout, becomes more frequently its seat; producing therein the most exquisite pain, and giving rise to the most imminent danger; so much so sometimes, that death ensues in a short time after its invasion. The most excruciating agony, and the most frightful spasms, are the principal phenomena presented by this change of place of gout. And so wayward is it sometimes, that it forsakes the stomach and attacks the brain with almost the rapidity of lightning. We occasionally attended a lady, who was subject to this form of gout; in her, we have known it seize upon the stomach with the most frightful violence; after continuing there for fifteen or twenty minutes, it would without any apparent cause mount to the brain, and in an instant excite ravings like a maniac. While here, we have seen handfuls of hair deracinated from the head, with the most frantic gestures, and every other extravagance that characterizes madness. This state of things however would not be more permanent, than when the stomach was the seat of its power; for with equal speed it would leave the brain, and return to this organ, there to renew its fearful operations. In this manner it would continue for hours; to vacillating between these parts, and each time renewing the phenomena above detailed. But what was the most astonishing in these frequent and rapid metastases, was the apparently entire integrity of the parts, the instant this Proteus would forsake them.

3504. In another case, we witnessed as remarkable, but not

as sudden metastases to the heart, the lungs, and, (from the seat of pain,) to the colon; in this instance the brain did not participate in these translations.

Treatment.

3505. When the stomach is the part affected, we are sometimes obliged to resort at the same moment, to very opposite modes of treatment. With one hand we are liberally abstracting blood, while with the other, we are administering opium, (in some form or other,) ether, brandy, &c. Nor must this plan be called empirical or contradictory, since it is justified by experience. For in the case of the lady above mentioned, it was always resorted to, and always sooner or later successful. We therefore do not hesitate to recommend this seemingly discordant practice. The cases in which Dr. Rush bled so liberally, (par. 3476,) were of this kind, and come in to corroborate the practice.

3506. In addition to these means, we should never fail to employ as promptly as possible after bleeding, the most powerful and active of the rubefacients, as mustard, spirit of turpentine, Cayenne pepper, or the water of ammonia, as well to the lower extremities, as to the region of the stomach. Indeed, so efficient have the latter remedies sometimes been, that we had reason to believe, from the promptitude of their action, and the suddenness of the relief, they were chiefly instrumental in removing this complaint.

3507. It must however be borne in mind, that when the stomach is assailed with this gouty violence, much of its susceptibility is destroyed; and to compensate for this loss, we must very much increase the quantity of our remedies—three or four-fold doses are sometimes required under such circumstances.

3508. It must also be recollected, that the pulse, if not well understood in this disease, might much mislead the judgment. The lancet might be proscribed, when the condition of the patient imperiously demanded its use; we must therefore not permit ourselves to be deceived by its simulating weakness—the depressed pulse is almost always the attendant on this form of gout. Nevertheless, it must be admitted, that this disease may attack patients, under circumstances in which it would be improper to bleed. But as these cases cannot be distinctly stated, we must leave much to the judgment of the practitioner who may have charge of the case. Much information however may be derived from taking into consideration the period and force of the disease; the habits, age, and constitution of the patient;

the probable power of the system to react after bleeding; temperature of the skin, &c.

3509. Should the bowels be confined, or even not freely open, a few hours before the attack, a stimulating injection should immediately be given; and if it do not operate speedily it must be repeated.

3510. When gout is translated to other parts, the disorder is to be combated upon general principles, and by remedies that would be appropriate did it arise from any other cause; recollecting always the very great utility of rubefacients to the extremities. Purging becomes of the first consequence in metastasis of gout, when seated elsewhere than in the stomach; and even when here, it must be employed as soon as its condition will permit the use of cathartic medicine, without running the risk of neglecting the fulfilment of a more pressing indication, namely, the relief of pain.

3511. In colic from gout, we have much reliance on the early use of castor oil, and stimulating enemata; and these followed, after proper alvine discharges, by an enema of laudanum*—we have already remarked that an anodyne enema requires three times the quantity that would be exhibited by the mouth. A similar treatment is required when the kidneys are the seat; but in addition we may employ local bleeding, and the warm bath with much advantage. We have sometimes seen this affection removed instantly by thirty drops of the spirit of turpentine, taken as soon as pain has been felt in the part.

Misplaced Gout.

3512. As it is agreed by all writers that the extremities are the natural seats for gout, the name of “misplaced” has been given to that species or variety that locates itself in any other portions of the body. Previously, however, to its fixing itself

* Dr. Chapman warmly recommends the use of the volatile tincture of guaiacum, in chronic, gouty colic; and we may add, that our own experience is much in favour of its efficacy. We have also seen the most decided advantage from the use of the following prescription, first recommended to our notice by our friend Dr. Physick:—

R. Sp. tereb. rect.	-	-	3vj.	Take Rectified spirit of.		
Ol. menthæ	-	-	3ij.			
M.						
				turpentine	-	6 drachms.
				Oil of mint	-	2 drachms.
				Mix.		

Of this, twenty or thirty drops is to be taken morning, noon, and night, in a wine-glassful of sweetened water. This is to be persevered in for some time; and by which we have seen the most decided relief afforded, in a number of cases of flatulent colic, of gouty origin.

elsewhere than on the extremities, it is known to wander sometimes to several parts of the system, without tarrying long at either—when thus whimsical, it is called the “erratic gout.”

3513. The misplaced, like the retrocedent gout, is never uniform in its selection of parts to fix upon; it may be the head, the heart, the stomach, the intestines, or the kidneys. Dr. Chapman informs us, that he met with a case in the Alms-house, in which it repeatedly attacked the penis of an old man, occasioning a painful priapism.

Treatment.

3514. As this species of gout is virtually the same as the retrocedent, it must be treated upon the same general principles that should govern us in the management of the latter—recollecting, however, that it is an inflammatory transposition, and is to be treated by the antiphlogistic means already recommended. At the same time bearing in mind the importance of inviting it to its proper seat. For this purpose, we know no application so certain as a pair of blisters to the ankles—we learnt this from a gentleman who for very many years had been subject to this form of gout, and from which he suffered much, until he could seduce it to the feet by these means, and in which he said he had never been disappointed. It has not, however, been so uniformly successful in our hands, though we think it more certain than any other that we have tried.

3515. It unfortunately happens with patients liable to this misplacement of gout, that they entertain notions of their own upon this point—they think this irregularity depends upon debility, and especially of the stomach. Under this impression they take the most stimulating articles, to “drive it from this organ;” than which many times, nothing can be more unfortunate, especially with the plethoric, and with those liable to determinations to the head.

3516. We, however, do not deny, but that gout may attack those who have feeble or exhausted constitutions, and in whom phlogosis may not appear, or at most but very slightly—it may therefore become necessary under such circumstances, to pursue a more cordial treatment, and to recommend a more generous regimen; but these cases should be carefully discriminated, before a stimulating plan of treatment is vigorously adopted.

CHAPTER XVII.

SCROFULA.

3517. IN treating this subject we are every way aware, how little can be said that would be satisfactory, either as regards its pathology or its treatment. We can only, therefore, give a brief outline of this interesting, but inscrutable disease. To trace it through its diversified meanderings; to point out its modifying powers, and its various, and afflicting terminations, would require a volume, instead of the few pages our present design can spare to its investigation; and more especially, as many of its consequences become the province of the surgeon.

3518. The influence of this disease is so pervading, as to give rise in itself to a temperament, that is called the "lymphatic temperament."* Its seat is principally confined, if not altoge-

* Dr. Craigie, (Elements of General and Pathological Anatomy, p. 239,) seems to entertain opinions respecting the lymphatics that are in opposition to the generally received notions of their functions in health, or their agency in disease. He says, "the lymphatics have long been supposed to be the agents concerned in the formation of king's evil, (struma, scrofula,) and in the development of disease when latent. What are the proofs of this opinion? Have the lymphatics been actually found disorganized in cases of strumous disease, and does scrofula never take place without traces of this disorganization? Do they act as the cause, or do they partake in the effects of another morbid agent more general in its operation? In answering these questions much will depend upon the meaning attached to the term scrofula. If this be a disease appearing in the lymphatic glands only, there may be some grounds for the opinion. But to assemble the numerous disorders termed *strumous*, under the head of the lymphatics, implies conclusions which are not supported by anatomical facts."

We regret, that Dr. C. has not furnished us with the causes of his doubts, as regards the location, (at least in the general belief,) of scrofulous action; for agreeably to our own impressions, the lymphatic glands, and perhaps the lymphatics themselves, are in every instance of scrofulous inflammation, directly involved, whether the irritation giving rise to it originate in them, or they only obey some other "morbific agent more general in operation." Dr. Parr makes "scrofula" and "struma" synonymous; and Dr. Cullen confines the seat of this affection to the conglobate glands, and particularly to those of the neck. Indeed Dr. Craigie seems to answer the questions he propounds, in a manner adverse to what he would seem to insinuate, in another portion of the Chapter on the Lymphatic System, he there says, "in such affections, (scrofulous,) these bodies, (lymphatic glands,) undoubtedly become the seat of a slow inflammatory action, which is attended with gradual enlargement, without much pain or change of colour in the integuments. At length, the gland is found to become softer than it had been, and an opening takes place in the skin, through which a fluid is discharged, not homogeneous, but in general consisting of a thin serous water, in which thicker pieces like curd, (see par.

ther, to the lymphatic glands, or the lymphatics themselves. The bones, however, together with the structures connected with the larger joints, have been supposed also to be the *seut* of

3520,) are mixed. This fluid, which is generally most completely formed in suppuration of the lymphatic glands, is what has been termed scrofulous, or strumous matter." p. 242.

In this extract, every thing is admitted that would appear to be denied just before; namely, inflammation and suppuration of the lymphatic glands, and these constituting the particular disease of scrofula or struma. Here his own admissions answer the question, "have the lymphatics been actually found disorganized in cases of strumous disease," in the affirmative. Nor is it evidence, that the lymphatic glands are not liable to a peculiar inflammation, or an inflammation modified by structure, and of course peculiar to that structure, because in ordinary bubo, the suppuration exhibits the appearance of pus formed in other tissues; since this may have involved only, as Dr. Craigie observes himself, the capsule and surrounding cellular substance, and yet the parenchyma of the lymphatic glands may have an inflammation peculiar to themselves; or in other words, modified by structure.

We must regard, therefore, Dr. Craigie's views rather vague upon this point, when he says, (p. 244,) "the lymphatic glands as organized bodies may be supposed liable to *ordinary inflammation*." Yet on this subject no very precise facts are given. "The swelling called *bubo*, (*Boucan*, Hippocrates,) appears to be in most cases inflammation of the capsule and surrounding cellular substance." Now, what are we to understand by the term "*ordinary inflammation*?" Is each particular structure liable to an inflammation, termed from the uniformity and universality of its phenomena, *ordinary inflammation*, besides a peculiar one? or in other words, is a tissue liable to two kinds of inflammation, the one "*ordinary*," and the other peculiar. Were this so, it is evident, that the remote cause of the inflammation must have the modifying power, and not the tissue or structure, which has never yet been shown. It must therefore be evident, that the "*capsule*" of a gland may be liable to an inflammation peculiar to such structure, while the structure which it invests may have its own laws of inflammation, if we may so term it—and we think this is satisfactorily illustrated, as observed above, by the disease in question.

Besides, we think the term "agents concerned in the formation of king's evil, and in the development of the disease when latent," does not convey the general impression of pathologists upon this point—the general belief is, that the lymphatics, and the lymphatic glands, are really the seats or the victims of scrofulous irritation or action, and not the causes or "agents" of this peculiar modification of inflammation; for this supposition would make them the active *cause* of the disease peculiar to themselves; for it is the mode of inflammation, as governed by the peculiarity of structure and nature of the agent or remote cause in the respective tissues of the human body, that gives rise to variety in the phenomena of inflammation; for we have no idea of the essences of inflammation; though we know from experience, that various agents will produce a peculiar action in parts which shall give rise to variety in the phenomena and result of inflammation. Thus, the prick of a pin, and the insertion of the matter of chancre, gonorrhœa, small-pox, &c. will produce their own peculiar modes of inflammation; now all of these causes except the first, cannot be imitated by any other agent, or be made to change place with each other. From this it is rendered more than probable, that the nature of the stimulus, peculiarity of structure, as well as the condition of such structure, are essential to the explanation of the different phenomena presented in these several cases; and that it is every way likely, that for the existence or development of scrofula, it is necessary that some peculiar or specific stimulant or agent, or peculiarity in the condition of the tissue, is required; for we do not believe,

this disease; and giving rise to affections of the spine, the morbus coxarius, white swelling, &c. In cases, in which the bones are involved, it is said there is deficiency of earthy matter, and an over-quantity of gelatine; but if this be admitted, it only proves an imperfection in nutrition, and not an affection of the bones themselves, arising independently of any condition of the lymphatic glands or system. And of the other glands, not lymphatic, which are said to be involved in this affection, as the testicles in males, the mammæ in females, the thyroid gland, and the tarsi, become so, only perhaps in proportion, as lymphatics may constitute a part of their structure; and consequently, do not form an absolute exception to the rule, that "scrofula is confined to the lymphatic glands or system."

3519. The constitutions most liable to the scrofulous taint or diathesis, are such as are marked by certain physical peculiarities. As the blond complexion, consisting of light and silky hair, white skin, blue eyes, blooming cheeks, the veins easily traced, the upper lip, columna nasi, and lower parts of the nostrils, rather swelled; long and slender fingers; the chest narrow, and the shoulders projecting. The muscular system is soft and relaxed; in a word, the whole physical arrangement of the body betray marks of feebleness, or delicacy, though we would not say with many others, that this disease arises from debility. In this diathesis, however, the mental faculties are often precociously acute, and vivacious.

3520. In such diatheses, the presence of almost any other disease, serves as an exciting cause, to the latent disposition; and especially, those that are wont to run into a chronic form; and hence the frequency of complication. Indeed, it sometimes happens, that we have no evidence of the existence of this predisposition, until it is thus roused into action, whatever reason we may have to suspect the existence of the temperament, from the presence of physical signs. At other times, the lymphatic glands are found enlarged, and discover themselves in various parts of the body, but especially in those of the neck. These, however, in some instances, remain stationary during life; while at other times they gradually develope themselves, by a slow and

that if any ordinary cause capable of producing inflammation were applied to a perfectly healthy structure, that it would produce any thing beyond an inflammation that would be readily subdued by the common powers of the system—thus, if a perfectly healthy lymphatic gland were irritated to inflammation, that gland would, not merely from structure, take on or assume the inflammation we constantly observe in a similar gland, but which labours under the scrofulous diathesis. We think this circumstance is abundantly illustrated by the difference of consequences of the common bubo. In one instance it is inflamed even to suppuration, yet heals without extraordinary trouble; while in the other, it heals with great difficulty, or perhaps not at all.

peculiar inflammation, ending most commonly in ulceration.* The sores produced by the suppuration of scrofulous glands, are always difficult to heal; and the whole progress to this condition is accomplished with much difficulty; the pus, if it deserve the name, resembles whey with small flakes, like the curd of milk, or is ichorous, and excoriating. The ulcers have ragged edges, and heal with high cicatrices. The surface of the sore is slightly red, with feeble-looking granulations, which for a long time resists every attempt to make them heal.

3521. There is perhaps no tissue in the body, that may not have scrofula developed in it, because none, as far as we know, is without a lymphatic apparatus of some kind or other. Thus the brain, the lungs, the liver, the spleen, &c. &c. are reported by Laennec, Louis, Andral, Broussais, and many others, to be frequently studded with tubercles, which appear to have a lymphatic origin. No period of life perhaps is exempt from scrofulous development; but the parts which take on this action, seem to be influenced by the period of life, or the advancement

* Mr. Hunter was of opinion, that the several changes in the scrofulous gland, was not the result of inflammation. He says, "many indolent tumours, slow swellings in the joints, swellings of the lymphatic glands, tubercles in the lungs, and swellings in many parts of the body, *are diseased thickenings without inflammation.*" In this opinion, he appears to have departed from his habitual philosophical mode of investigating the subject on which he turned his wonderfully discriminating mind; for in all the instances enumerated as exceptions to the formation of pus without inflammation, it would be no difficult matter to prove previous or concomitant inflammation, or the abnormal enlargement of the capillaries belonging to the several implicated tissues, to arise from this cause. It is true, that the lymphatic glands run on to suppuration, without exhibiting some of the phenomena that a common phlegmon presents us with; yet the changes they undergo are nevertheless the result of a modified inflammation; since perhaps, their progress to suppuration can only be arrested by means similar to those that have been found successful for indisputable instances of inflammation. Besides, we have always found in glands thus situated, the place of acute suffering, supplied by a more indistinct dull sensation when they were proceeding to suppuration. We would therefore conclude that, the only successful mode of treating scrofulous inflammation, is the same as for any other confessed inflammation. This is abundantly proved in the treatment of the hip disease, or the white swelling of the knee, in both of which the progress and ravages have been successfully traced to inflammation of the synovial tissues or cartilages, or of both. In these affections, pain, (more or less,) heat, and swelling, attended during life; and after death, the knife revealed, vascularity. The mere absence of pain as an initial symptom, is not sufficient to prove the absence of inflammation—for this affection in its chronic forms, is frequently unattended by acute pain, especially when its seat is either the mucous or serous tissues—nay, they may even proceed to the formation of serum or pus, before a diseased condition of the parts is suspected.

Cullen, Good, and others, consider scrofula as consisting especially of debility; yet it is well known to all careful practitioners, that stimulating applications to the inflamed or suppurating glands, does mischief; and the same may be said of highly stimulating articles of diet—hence the advantage of a mild vegetable and milk diet, in scrofulous constitutions.

which the organ makes towards its final perfection; for after this is accomplished, the liability seems to be diminished. Thus the tendency to scrofulous complications, is very much diminished after the person has passed the thirtieth year. But previously to this, there is no certainty, that phthisis or other affections connected with a scrofulous diathesis, may not be developed.

3522. It is owing, almost certainly, to the transmission of this predisposition, that consumption may with so much propriety and certainty, be looked upon as hereditary. And, though the scrofulous taint may not manifest itself in the lungs, it may in some other viscera, or in the lymphatic glands themselves, strictly so called. Scrofula, like consumption, (or more properly perhaps, scrofula in the form of phthisis,) gout, and epilepsy, may fail to be transmitted, or to be developed in certain instances, where there may be hereditary claims to it; yet the constitutions of such persons must always be looked upon with suspicious fear. We do not, however, pretend to deny from what has been said, that this diathesis cannot be generated in constitutions that are not influenced by hereditary disposition; for this certainly must be the case, for the cause or causes which was capable in the first instance to generate scrofula, may combine to produce it in others. It would seem agreeably to observation, that long exposure to certain causes, may even in an untainted constitution, produce the scrofulous tendency; as climate, air, mode of life, and disease itself.

3523. Thus, warm climates are comparatively free from scrofula, while the people of countries of low temperature are obnoxious to it; so are the inhabitants of cities when compared with the surrounding countries; in Great Britain, witness the poor people of the large, and crowded manufacturing towns; those of filthy habits, sedentary, and indolent withal, are very liable to this disease; and to these causes we may add, the directly debilitating effects of scanty food, or unwholesome diet.

3524. In a practical point of view, the knowledge of the occasional causes of scrofula, may lead to the prevention of its development, though we may never be able to destroy the predisposition. Indeed, we may safely say, that the absence, or the withdrawing of the exciting causes, may do more, than prevent the immediate development of the disease; it may diminish the susceptibility to development, which would be a great point gained.

3525. Our attention then must be mainly directed against the full or partial development of this disease; and much may be done where every thing essential to this end can be commanded. When compatible with the condition or means of the patient, a change of climate would be highly advantageous; and where this is impracticable, much may be done by avoiding all unnecessary exposure to cold and wet—this may be effected or guarded

against, by additional clothing, and especially of the woollen kind, and avoiding all unnecessary exposure. Flannel, or fleecy hosing next the skin is of much consequence, and should extend over the whole of the protected surface of the body. Females should be particularly circumspect in this particular; they should invariably wear worsted stockings, flannel drawers, and chemises. The city air should be changed for that of the country; and particularly that from salt water, when it can be commanded; for by this, two advantages are derived from the one source; pure air, and sea-bathing. In employing, however, the latter remedy, much care is necessary—indeed it should always be under the direction of the physician, who will not permit it when there is cough, or other visceral disease; or too little vigour in the constitution, to produce a sufficient and healthy reaction.

3526. Well-managed exercise, is of great consequence to scrofulous habits; the regular feats of a properly-governed gymnasium, is of all others perhaps the best, as the exercise can be always accommodated, to the existing powers of the patient, and gradually augmented as strength and agility increase. It will also give a habit of early rising, as the practice of the gymnasium is best performed early in the morning.

3527. Iodine has of late, been warmly recommended, by a great number of respectable practitioners, and especially by the Germans. Dr. Manson of England has also furnished a number of interesting cases, in which this remedy has been used with advantage; and in our own country Dr. Charles Lee Payne of Lexington, N. C. gives us a very interesting case, which we will give from the "American Journal of the Medical Sciences," for August, 1830. This case appears to us the more valuable from the subject, being a "negro man;" for agreeably to our own observations the African and his descendants are much more liable to this disease, than the whites of America. "A negro man, aged 29, thick lips, thin and delicate skin, about two years ago received some injury from a blow on the face; a few months afterwards the submaxillary glands, and the glands of the neck, began to swell and harden; soon afterwards he was put under medical treatment, but no permanent benefit was derived from the plan pursued, and the glands of the neck became successively more and more enlarged—suppuration took place, and the matter, which was of a sero-purulent and flaky appearance, was discharged by numerous foraminæ.

3528. "In this situation, with the neck extremely swollen, the patient came under my care, about the 1st of January, 1829. Without any preparation, I immediately commenced the treatment by giving him twenty drops of the tincture of iodine three times a day, cautiously and gradually increasing it to forty-five drops, and at the same time used the ointment of the hydriodate

of potash by friction to the tumours. In three weeks a decided impression was made, but the disease appeared more to remain stationary, which induced me to employ the iodine in larger doses than I had before heard of its being given—forty-five drops three and four times a day, watching however all the time carefully its effects. In this way I continued until he had taken about eight ounces of the tincture, when I thought prudent to wait a short time, thinking there might be some danger in going further, and that habit might have some influence in lessening the effects of the medicine. My patient however continued, (without taking any more,) to improve, and in about four months from the time of commencing was discharged perfectly cured. Not a vestige of the disease has since appeared, notwithstanding he has been actively and laboriously engaged at the gold mines.”

3529. “No other medicines were used during the treatment; for I determined at the beginning to test the virtues of the iodine in this disease, unless the case should contraindicate its use, or appear imperiously to require the use of other medicines.”

3530. “During the whole course of treatment the patient walked about, and never expressed the least uneasiness from the use of the medicine. No other sensible effect was produced on his constitution except that he became considerably emaciated; he however soon gained his usual strength, and became quite fat, after the disease had entirely left him.”

3531. The formula used of the tincture was of iodine thirty grains to the ounce of alcohol.

3532. Of the ointment, forty-eight grains of hydriodate of potash to the ounce of prepared lard.

3533. A generously nutritious diet, should be adopted; all unnecessary stimuli should be shunned. The stomach should be gratefully stimulated by the vegetable mucilages, as the rice, sago, tapioca, arrow root, &c. together with as much animal food as is necessary to preserve its tone, but not sufficient to oppress it. All crude substances should be carefully avoided—all unripe, or ascescent fruit, should be forbidden.

3534. We have little reliance in general, upon medicine in this disease; though it is every way important to keep the bowels well regulated—for this purpose we believe the simple rhubarb pill is the best. Should the glands threaten suppuration, it must be avoided as long as possible, by attending to the state of the system—that is, keeping down arterial action, by gentle purging, a nutritious, but a vegetable diet, and by the frequent bathing of the part with cold salt and water. If suppuration have taken place, the diet should be more generous, but never stimulating—tonics may be given in combination with the compound syrup of sarsaparilla; and the sores washed two or three times a day, with a decoction of carrots.

PRESCRIPTIONS.

TOAST WATER.

Take a piece or slice of stale sweet bread; toast it gradually until quite brown, and then immerse it suddenly in cold water—covering the vessel for a short time.

TOAST TEA.

Toast bread as directed above; crumble it in a tea-pot, and pour boiling water on it—when cold, strain.

APPLE WATER.

Roast two or three apples, and while hot, pour a pint of boiling water for each apple; beat them well up, and when cold, strain for use.

TAPIOCA, SAGO, AND ARROW ROOT JELLIES.

Take a table-spoonful of either of these substances; pour on either a pint of cold water, and boil it gently until it is a transparent jelly—sweeten with loaf sugar to your taste, and grate on it a little nutmeg, or season with lemon juice. The arrow root and water should be mixed intimately before boiling—this is not necessary with either of the other substances.

COLD CUSTARD.

Take the yolk and white of an egg, and one table-spoonful of the best brown sugar; beat together in a vessel, until the tenacity of the white of the egg is entirely destroyed—add gradually, (stirring it constantly,) half a pint of cold water, and two tea-spoonfuls of rose water, and a little grated nutmeg. A wine-glassful of this may be taken every two or three hours.

SIMPLE CERATE.

Take olive oil, fresh hog's lard, and spermaceti, six parts; bees-wax, four parts—melt together slowly.

BASILICON.

Take of hog's lard, eight parts; white resin or rosin, five parts; bees-wax, two parts—melt together slowly.

SPIRIT OF MINDERERUS.

Take of the carbonate of ammonia, in powder, two ounces. Add by small portions, with frequent stirrings, as much distilled vinegar, as shall be sufficient to saturate the ammonia exactly.

N. B. This should always be made fresh.

CHALK JULEP.

Take of prepared chalk, one ounce; white sugar half an ounce; gum Arabic, quarter of an ounce; spirit of cinnamon, two ounces; water, two and a half pounds.

Rub down the gum with four ounces of water. Then rub the sugar with the spirit of cinnamon, or four drops of the oil of cinnamon; then mix the whole together.

This should be made fresh. A table-spoonful of this may be given frequently to an adult, during the day, and a tea-spoonful or more to a child.

RHUBARB PILLS.

Take powdered rhubarb, one drachm; oil of caraway, six drops; soap, six grains; syrup of rhubarb, a sufficient quantity to make into a mass; divide into fifteen pills.

GLOSSARY,

EXPLAINING THE TECHNICAL TERMS USED.

A.

- Abscess*, a collection of pus or matter.
- Abdomen*, the belly or paunch.
- Abdominal viscera*, the contents of the abdomen.
- Abortion*, miscarriage.
- Antiphlogistic*, medicines that reduce an inflammatory habit.
- Axillary*, belonging to the arm-pit.
- Anormal*, unnatural or unhealthy state.
- Aponeurosis*, the tendinous coverings of the joints.
- Egophonism*, is the trembling or jerking sound of the voice, like the bleating of a goat.

B.

- Bronchophonism*, the sound of the voice in the large bronchial tubes.
- Bronchial respiration*, the sound of the respiration as it exists in the larynx, trachea, and larger bronchial trunks.
- Blowing or puffing respiration*, is observed sometimes when the patient is breathing quickly and by fits; during inspiration the air appears as if drawn from the auscultator's ear; while in expiration, it seems as if blown into it.
- Borborygmus*, a rumbling noise in the bowels, occasioned by wind.

C.

- Cardia*, the upper, or left orifice of the stomach.
- Catamenia*, the monthly discharge of women.
- Chyle*, a white fluid produced by digestion.
- Colyrium*, a wash for the eyes.
- Coma*, lethargic drowsiness.
- Congestion*, accumulation of blood in a part.
- Crisis*, termination of a disease by some sign.
- Cathartics*, purging medicines.
- Chronic*, long-continued disease.
- Capillaries*, the minute hair-like vessels of the system.
- Crepitous rattle*, resembles the sound produced by the crepitation of salt exposed to heat, or that produced by blowing into a dried bladder.

D.

- Diaphragm*, a muscle which separates the belly from the chest.
Dorsal, belonging to the back.
Duodenum, the first bowel below the stomach.
Dyspepsia, depraved digestion.
Diaphoretics, medicines to promote perspiration.
Diaphoresis, perspiration.
Diathesis, a disposition or affection of any part.
Diagnosis, discriminating one disease from another.
Diuretics, medicines that promote the secretion of urine.

E.

- Enema or Enemata*, injection, or injections.
Excitability, the capacity to be acted upon by stimuli.
Excitement, the action produced by the application of stimuli.
Exfoliate, the act of casting off dead bones or scales.
Epidemic, diseases that prevail generally, attacking many at the same time.
Endemic, diseases affecting a particular people or country.
Engorgement, accumulation of blood in a part.
Exacerbation, moment of increase of a fever.
Exanthemata, acute eruptive diseases.
Expectorants, medicines to promote spitting.
Erythema, a slight inflammation of the skin or other parts.
Erysipelas, St. Anthony's fire.

F.

- Farinaceous*, mealy.
Febrile, feverish.
Febrifuge, that which has the power to remove fever.

G.

- Gangrene*, a mortification, or nearly the loss of life of a part.

H.

- Hæmorrhages*, spontaneous bleedings from any part of the body.

I.

- Idiopathic*, an original affection of a part.
Iliac passion, dry belly-ache.

L.

- Lateritious*, brick-coloured.
Leucorrhœa, the whites.
Lumbar, belonging to the loins.

M.

Miasm, sing. *Miasmata*, plur. any fume or effluvia capable of producing disease.

Meninges, coverings of the brain.

Mucus, a peculiar tenacious secretion.

Mucous, that which partakes of mucus.

Metallic tinkling, a sound resembling the striking of a cup of metal, glass, or porcelain.

N.

Nausea, sickness at stomach.

Normal, natural or healthy state.

O.

Œsophagus, the gullet.

Ophthalmia, an inflammation of the eyes.

Oxygen, basis of vital air.

Oxygenation, acquiring oxygen.

Orthopnœa, a difficulty in breathing in which the patient cannot lie down.

P.

Pectoral, belonging to the breast.

Physical, that which relates to natural agents—that which is opposed to moral.

Physiology, the doctrine which teaches the use and actions of living parts.

Plethora, fulness of blood.

Pus, the matter found in abscesses, and other parts, after inflammation.

Pustule, an ulceration of the cuticle, with an inflamed base containing pus.

Paroxysm, an access, fit, or exacerbation of a disease.

Phlegmasia, inflammation.

Phlegmonous, inflammatory.

Pre re nata, as occasion may require.

Prognosis, foretelling the event of a disease.

Pathology, morbid appearance of diseased parts.

Pathognomonic, characteristic symptoms of a disease.

Purulent, consisting of pus.

Post mortem, after death.

Percussion, the striking of the chest with the extremities of the fingers so as to make it render its sound.

Pectoriloquism, *perfect*, is the transmission of the voice through the stethoscope, when applied to the chest.

Pulmonary respiration, is the sound or slight murmur rendered by healthy lungs, on the application of the funnel-end of the stethoscope.

R.

Rickets, a disease of the bones.

Rattle, expresses the sounds besides those of healthy respiration, which give rise to the sensation of air passing through a fluid in the lungs.

S.

Sanguiferous system, the blood-vessels, both arteries and veins.

Scirrhus, a tumour affecting glands.

Scrotum, the bag under the penis containing the testicles.

Secretion, the separation of various fluids, and other matters, by glands from the blood.

Symptomatic, arising from, or indicative of some other affection.

Syncope, fainting fit.

Subsultus tendinum, a convulsive motion of the sinews of the wrist.

Synochus, a sub-acute inflammation.

T.

Tenesmus, an ineffectual urging to go to stool.

Tormina, a griping pain.

Tubercle, a small, hard, superficial tumour, circumscribed and permanent, or suppurating partially.

Type, the peculiar character assumed by a disease.

U.

Uterus, the womb.

Utero-gestation, the term of pregnancy.

V.

Vesicate, to blister.

Vesication, blistering.

EXPLANATION

OF THE

PLATE OF THE PATTERNS FOR BLISTERS.

- Fig. 1. Pattern for blister to go between the shoulders.
 2. " " " for the chest of a female.
 3. " " " for the chest of a male.
 4. " " " for the side.
 5. " " " for the calves of the legs.
 6. " " " for the chest of a child.
 7. " " " for behind the ear.
 8. " " " for inside of the thighs—these differ from those for the calves of the legs, in being a little broader.

Fig. 1.



Fig. 2.

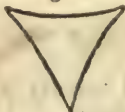


Fig. 3.



Fig. 4.

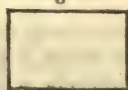


Fig. 5.



Fig. 6.



Fig. 7.

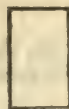


Fig. 8.

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